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DEVELOPMENT AS DESTRUCTION: GEOGRAPHIC ANALYSIS OF LAND USE
CHANGES IN PORT OF SPAIN, TRINIDAD

by

Carla Waldron

Under the Direction of Susan Walcott

ABSTRACT

Trinidad and Tobago developed from an agricultural colony to a nation whose main economic driving forces include oil, natural gas and the service industries. This study seeks to examine how the changes in the economic and industrial sectors affected changes in the land use of the capital city of Port of Spain. Specifically it seeks to discover how the current service centred industrial boom has affected the urban land use of each district of Port of Spain and compares current trends with those in the past using city boundary, population, employment, transportation and housing statistics to support land use data. Findings demonstrate that the city experienced a reduction in residential land use and accompanying increase in commercial land use in all areas, including traditionally residential districts in the city, because of out-migration of the population, increased real estate prices and the conversion of formally residential areas to commercial sites.

INDEX WORDS: Urbanization, Urban Planning, GIS, Globalization, Land use, Caribbean, Port of Spain, Trinidad.

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CHANGES IN PORT OF SPAIN, TRINIDAD

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CARLA WALDRON

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Arts
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2005

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	IV
TABLE OF FIGURES.....	VII
CHAPTER 1 - INTRODUCTION.....	1
1.1 OVERVIEW	1
1.2 TRINIDAD AND TOBAGO	1
1.3 PORT OF SPAIN.....	5
CHAPTER 2 - CURRENT LITERATURE	7
2.1 URBANIZATION	7
2.2 URBAN DEVELOPMENT MODELS	7
2.3 URBANIZATION IN THE CARIBBEAN	10
2.4 GLOBALIZATION	12
2.5 URBAN PLANNING	15
2.6 SENSE OF PLACE AND IDENTITY	17
CHAPTER 3 - METHODOLOGY.....	19
3.1 OVERVIEW	19
3.2 DATA	21
3.3 DEFINITIONS	22
CHAPTER 4 - PORT OF SPAIN.....	24
4.1 OVERVIEW	24
4.2 CURRENT FORM OF THE CITY	25
4.3 POPULATION	31

4.4 HOUSING.....	32
4.5 EMPLOYMENT	32
4.6 ENVIRONMENT AND LANDSCAPE.....	32
4.7 TRANSPORTATION.....	34
4.8 INFRASTRUCTURE	35
CHAPTER 5 - ANALYSIS	36
5.1 THREE ERAS	36
<i>5.1.1 Agriculture: World War II - 1970s</i>	<i>36</i>
<i>5.1.2 Manufacturing/Petroleum: 1970s - 1990s</i>	<i>38</i>
<i>5.1.3 Technology and Services: 1990s - Present:</i>	<i>38</i>
5.2 VARIABLES	39
<i>5.2.1 City Boundary</i>	<i>39</i>
<i>5.2.2 Population.....</i>	<i>42</i>
<i>5.2.3 Housing.....</i>	<i>55</i>
<i>5.2.4 Employment and Transportation</i>	<i>67</i>
5.3 LAND USE	70
CHAPTER 6 - CONCLUSION.....	105
BIBLIOGRAPHY.....	110

TABLE OF FIGURES

Figure 1.1: Map of Caribbean highlighting Trinidad and Tobago.....	2
Figure 1.2: Economic Sectors as a percentage of GDP and as a percent of labor force.	3
Figure 1.3: Trinidad’s Main Urban and Industrial Areas.	4
Figure 4.1: Graph showing the % of Trinidad and Tobago’s population that lives in urban areas.	25
Figure 4.2: Map of POS City Form.	26
Figure 4.3: District population as a percentage of total POS population.....	31
Figure 4.4: Map of POS location showing the contour lines of the North Range.	33
Figure 4.5: POS main traffic routes.	35
Figure 5.1: The changing boundaries of Port of Spain.	41
Figure 5.2: Trinidad and Tobago Population.....	43
Figure 5.3: POS Population.	44
Figure 5.4: The percentage of the national population in each district.....	45
Figure 5.5: POS population density - 2000.....	46
Figure 5.6: Population Change by district: 1960 - 1970.....	48
Figure 5.7: Population change by district: 1970 - 1990.....	51
Figure 5.8: Population change by district: 1990 – 2000.	52
Figure 5.9: Population change by district: 1960 - 2000.....	54
Figure 5.10: Housing by districts: 2000.....	56
Figure 5.11: POS household density: 2000.....	57
Figure 5.12: POS households 1946 - 2000.	58
Figure 5.13: POS and GPOS households.....	59

Figure 5.14: POS vacancy rate.....	60
Figure 5.15: Household change by district: 1960 - 1970.....	62
Figure 5.16: Household change by district: 1970 - 1990.....	63
Figure 5.17: Household change by district: 1990 - 2000.....	65
Figure 5.18: Household change by district: 1960 - 2000.....	66
Figure 5.19: Employment by industrial sector: 2000.....	68
Figure 5.20: Business establishment distribution: 2000.	69
Figure 5.21: Buildings in POS: 1970 - 2000.	70
Figure 5.22: Business Places in POS: 1970 - 2000.....	71
Figure 5.23: Dwelling units in POS: 1946 - 2000.	72
Figure 5.24: Unplanned hillside development in Laventille.....	73
Figure 5.25: Dwelling change by district: 1970 - 1990.	74
Figure 5.26: Business place change by district: 1970 - 1990.	75
Figure 5.27: The Tatil building (left) and the Eric Williams Plaza (right).	76
Figure 5.28: Vacant sites in POS.	77
Figure 5.29: Dwelling change by district: 1990 – 2000.....	78
Figure 5.30: One Woodbrook Place.....	80
Figure 5.31: Traditional Woodbrook home, circa 1890.	81
Figure 5.32: Artist impression of One Woodbrook Place.....	81
Figure 5.33: The house located at 17 Duke Street, built in the 1780s, now functions as a commercial site.	82
Figure 5.34: Business place change: 1990 - 2000.....	83
Figure 5.35: Building in POS.....	87

Figure 5.36: Artist Impression of the Government Campus Plaza	87
Figure 5.37: The Broadway Area circa 1930.....	88
Figure 5.38: Buildings currently in the Broadway Area- proposed site for the Broadgate Project.	89
Figure 5.39: The Broadgate Project.....	89
Figure 5.40: The Bagshot house sketched in 1982.	92
Figure 5.41: The Bagshot house site 2005.....	93
Figure 5.42: Number 9 St. Clair Avenue sketched in 1983.....	94
Figure 5.43: Number 9 St. Clair Avenue 2005.	95
Figure 5.44: Coblentz House sketched in 1983.	95
Figure 5.45: Coblentz House site.....	96
Figure 5.46: corner of the Western Main Rd. and Luckput St. Woodbrook sketched in 1982. ...	97
Figure 5.47: Corner of the Western Main Rd. and Luckput St. Woodbrook 2005.....	97
Figure 5.48: Number 89 Pembroke Street sketched in 1982.	98
Figure 5.49: Number 89 Pembroke Street 2005.	98
Figure 5.50: Number 12 Gordon St as sketched in 1982.....	99
Figure 5.51: The site of number 12 Gordon Street 2005.	99
Figure 5.52: Corner of Richmond St. and London St. sketched in 1982.....	100
Figure 5.53: Corner of Richmond St. and London St. 2005.....	100
Figure 5.54: Number 27 St. Vincent Street 1983 (left) and 2005 (right).....	101
Figure 5.55: Changes in dwellings: 1970 – 2000..	102
Figure 5.56: Changes in business places: 1970 – 2000.	103
Figure 6.1: Changes in the city boundary of Port of Spain by era.....	105

Figure 6.2: Migration Flows in Trinidad.	106
Figure 6.3: Photo of Savannah area today (left) and the proposed plan for development of the area (right).....	107

CHAPTER 1 - INTRODUCTION

1.1 Overview

Trinidad and Tobago developed from an agricultural colony to a nation whose main economic driving forces include oil, natural gas and the service industries. This study seeks to examine how the changes in the economy and industrial sectors have affected changes in the landscape of the capital city of Port of Spain (POS). Specifically it seeks to discover how the current service centered industrial boom affected the urban landscape of each district in Port of Spain and compare current trends with those of earlier industrial eras using city boundary, population, employment, transportation and housing statistics to support land use data.

The purpose of this study is two fold. The first aim is to describe the change in the urban landscape of Port of Spain associated with each era of industrial prominence (agriculture, manufacturing and petroleum, technology and services). Population density and demographic data will be used along with land use data to explore the effects of this evolution on the face of Port of Spain. The study also presents a local example of the usefulness of GIS for analyzing data and providing a tool for city planning to assist policy makers in creating a plan for Port of Spain to grow without erasing its heritage and sense of culture and place.

1.2 Trinidad and Tobago

The twin island republic of Trinidad and Tobago is an independent nation comprising two islands situated at the southernmost point of the Caribbean archipelago (Fig 1.1). Trinidad is the largest island in the southern Caribbean in terms of area, population and natural resources and is viewed as a middle-income country (Lloyd-Evans et al 1993). Trinidad has an area of

1,864 square miles, roughly the size of Delaware, and is 7 miles off the eastern coast of Venezuela. Tobago has an area of 116 square miles. The two islands are 21 miles apart (CIA World Factbook 2003).

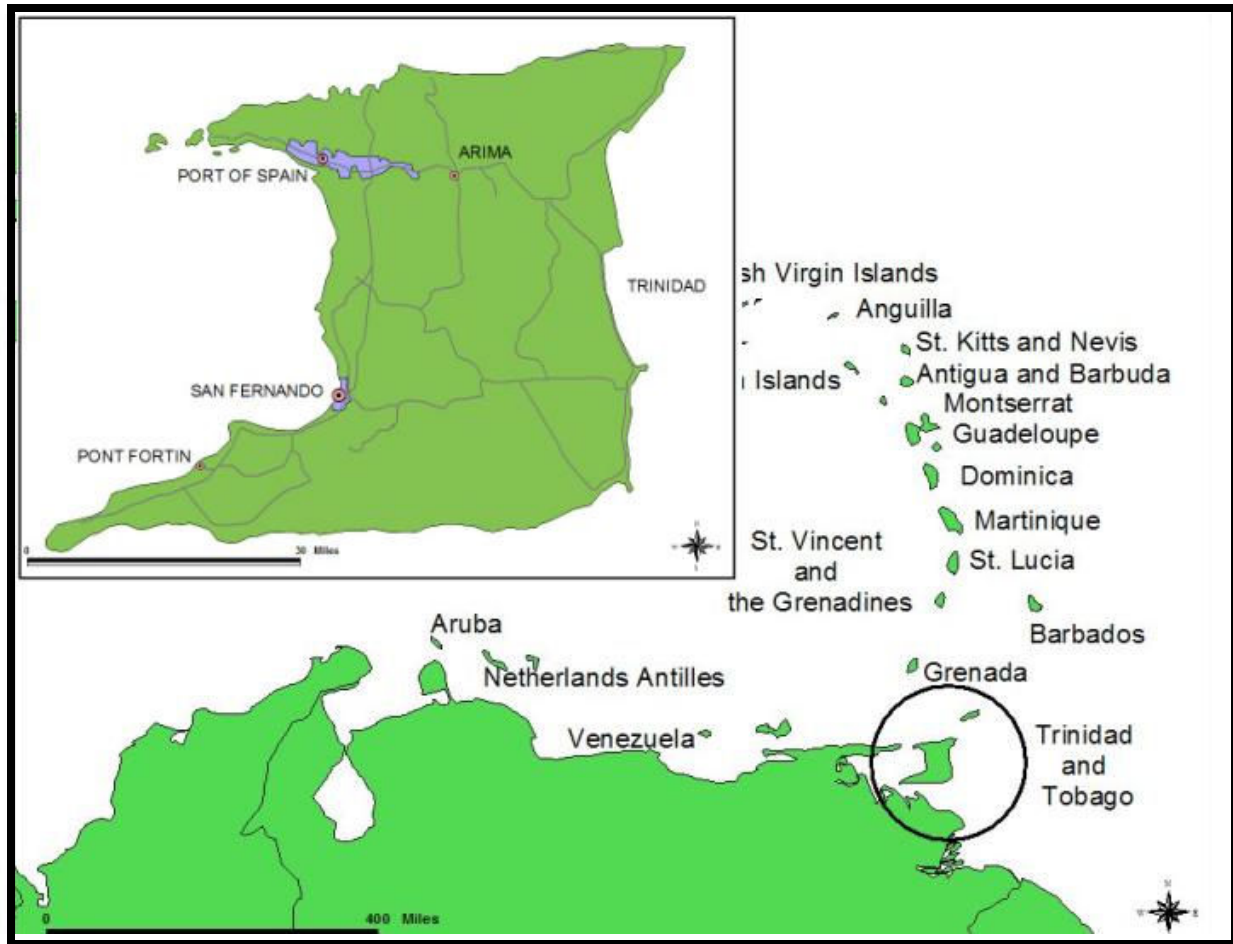


Figure 1.1: Map of Caribbean highlighting Trinidad and Tobago.

Source: www.geocomm.com 2004.

A British colony from 1797, the islands gained their independence on August 31, 1962. On September 24, 1976 the twin islands adopted a new constitution that established it as a Republic within the British Commonwealth. The islands joined under one government in 1888 divided into eight counties, three municipalities and one ward. This structure remains today and the capital city of Port of Spain continues as the economic and administrative center.

History created a unique and diverse society in the islands. There is ethnic and religious diversity in the country, yet relatively little unrest, which results in a well-integrated society. The islands' population is 1,104,209 with an annual growth of -0.68%. It is also an economically diverse nation with 2% of GDP in agriculture, 43% in Industry and 55% in Services. The labor force consists of 12% in Construction and Utilities, 14% in Manufacturing, 10% in Agriculture and 64.1% in Service industry (CIA World Factbook 2003). These statistics are shown in Figure 1.2 below.

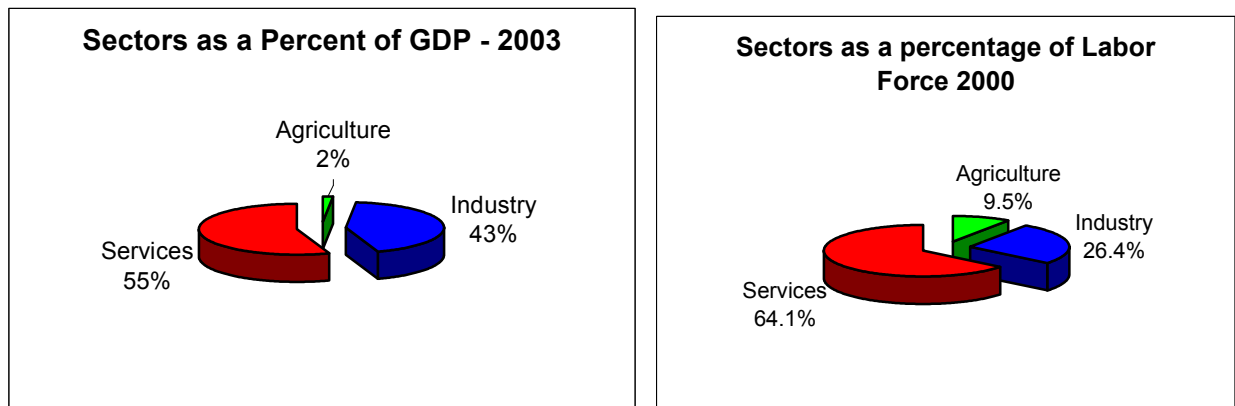


Figure 1.2: Economic Sectors as a percentage of GDP and as a percent of labor force.

Source: CIA World Factbook 2003.

Urban growth in Trinidad since World War II resulted in the loss of agricultural land, infill construction and replacement of buildings as occurred in other developing areas (Stewart 2001). The oil, gas and manufacturing industries development in post World War II continued to occur in areas outside of Port of Spain. The traditional changes mentioned above by Stewart (2001) occurred in these areas that were set up as the bases for the industry in central and south Trinidad as shown in Figure 1.3. Within Port of Spain this first wave of industrialization had a

less severe impact on the urban landscape. Trinidad's other main urban areas are San Fernando, Arima and Point Fortin (Fig. 1.3).

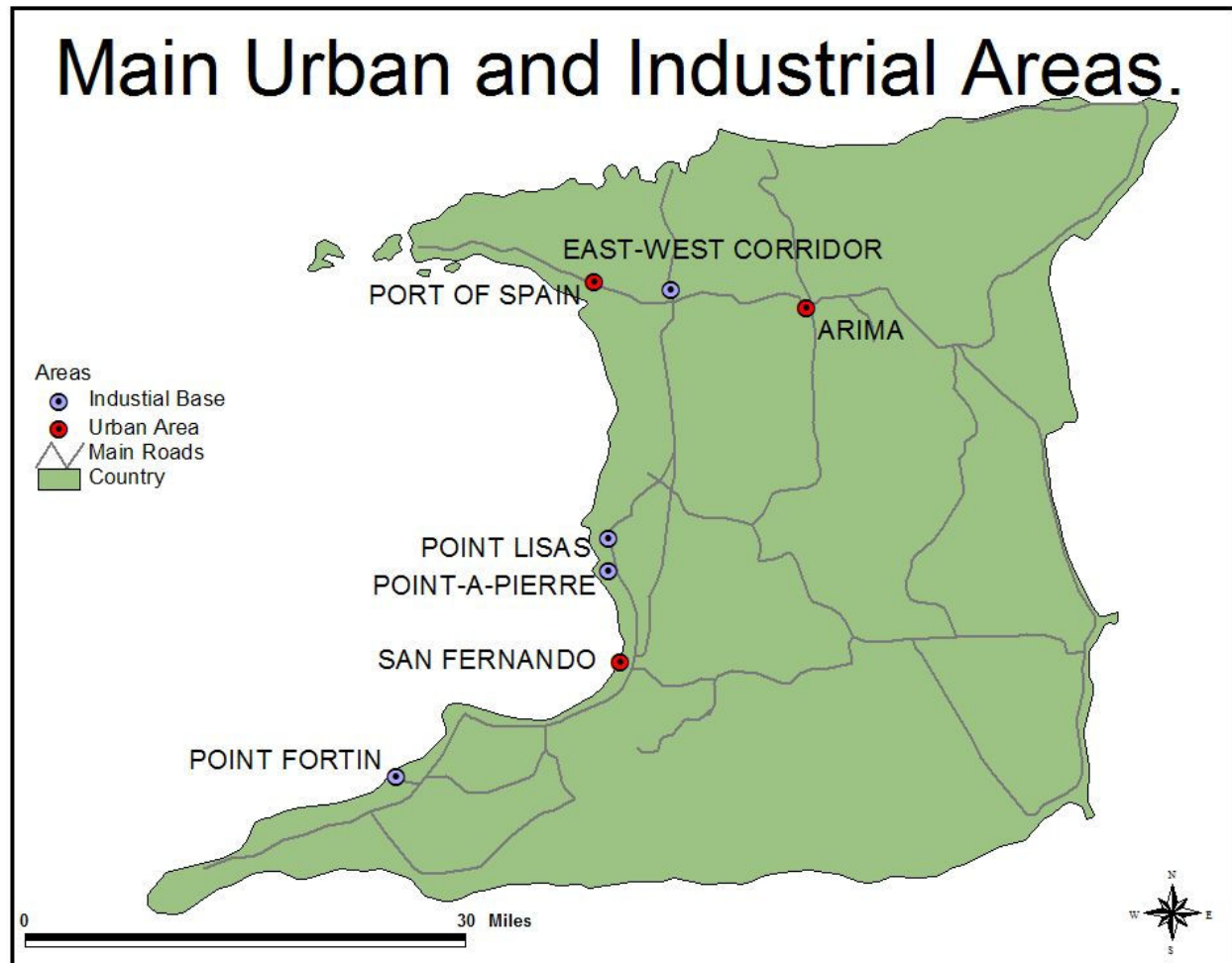


Figure 1.3: Trinidad's Main Urban and Industrial Areas.

Source: www.geocomm.com 2004.

In the past, public policy in the twin island state was principally concerned with economic matters and industrial development. Thus, in the last decade there was a focus on the increase of services, technological services and possibilities for international investment as the basis for city planning schemes. This is apparent in the mandate put forward by the government's

Vision2020 initiative that emphasizes the need to make Trinidad and Tobago a leader in finance, information technology and innovation while making POS a modern city (Trinidad Express 2004).

A rift exists in city planning; no real policy protects the historical buildings of Port of Spain that are being destroyed to accommodate the new high-rise structures of today's Caribbean globalized economy. In addition there is a lack of zoning and planning policy as well as adhesion to existing planning policy that results in invasion of commercial properties in residential areas, unsafe and substandard structures and issues of public health and traffic congestion as discussed further in Section 5.3.

1.3 Port of Spain

The study area for this paper consists of the Port of Spain area (Fig 1.4) as defined by the Central Statistical Office (CSO) and used for the collection of census data. Port of Spain consists of the Central Business District (CBD) a center of commerce and the port complex, business and retailing, an outer transitional zone of mixed residential, commercial and recreation (cultural) uses and another outer ring of residential communities.

Incorporated as a city on June 26th, 1914, Port of Spain was initially a small fishing village called Puerto de Los Hispanoles that became the country's capital city in 1757 when the capital was moved from St Joseph. Prior to World War I, Port of Spain was an anchorage port for cargo ships and passenger liners. In the period between World War I and World War II it developed into an alongside port allowing ships to come right into the harbor and dock. This change along with the Post WWII era expansion by land reclamation to enlarge the port facilities made it one of the busiest capital cities in the Caribbean (TIDCO 2003).

Like many Caribbean cities and towns, Port of Spain had little or nothing to do with actual manufacturing activities since the World War II era (Potter 1995). In the post World War II era the oil and natural gas industries developed near the sites of the resources, with industrial complexes going up in southwest areas of the island to facilitate production. In fact, San Fernando as the second largest city in the country is considered the industrial capital of the country (TIDCO 2003) and during the 1970s and 1980s manufacturing developed along what is termed the East-West Corridor (see Fig. 1.3).

In the last decade the service industry became a major player in Trinidad's economy. Employing 64% of the country's work force, this sector, which includes data processing and banking, has boomed over the last decade (CIA Factbook 2003). Port of Spain, the Central Business District of the country, was physically affected by this side of Trinidad's development. The growth in economic activity means that Port of Spain, with a population of 49,031 people in 2000, is undergoing continuous change as it is the predominant area for retailing, banking, finance and government offices (discussed further in Chapter 4). Port of Spain is also the center for culture in Trinidad and, because of its cultural and historical significance, contains many important buildings of heritage, which are important to the character, and appeal of the city.

The paper begins with a summary of the history and background information on the country of Trinidad and Tobago and its capital city of Port of Spain. The sections following discuss the current literature on development, urbanization, globalization, urban planning and GIS with reference to how these apply and are implemented in Trinidad and Tobago. The last section will discuss the city of Port of Spain during the three main periods of study. Each period is divided into the characteristics chosen for analysis. The analysis cumulates in a discussion of the land use changes in the city.

CHAPTER 2 - CURRENT LITERATURE

2.1 Urbanization

Issues of urbanization and development are linked throughout development theory (Arn 2002). In fact, the economics and politics of urban development are regarded as relevant to the mainstream of general development theory. Understanding the issues raised by rapid and concentrated urban growth clearly “needs to be placed in the context of the development process as a whole” (Drakakis-Smith 1995, 661).

Urbanization occurs as a result of a complex interplay of global and local social, economic, political, technological, geographical and cultural factors (Pacion 2001). While there are many opinions on which of these factors plays the largest role, one belief is clear within the discipline: urbanization is inevitable and unstoppable (Drakakis -Smith 1995). From Vance’s “Mercantile Model of Settlement and Development”, Christaller’s “Urban Model” and Potter’s “Plantopolis” model (Potter 1995) to the ideas of sub-urbanization, counter-urbanization and re-urbanization (Pacione 2001), urbanization exerts a large force in development theory.

2.2 Urban Development Models

Central Place Theory

Walter Christaller’s “Central Place Theory” is the traditional framework used to explain the location, size and spacing of urban settlements (or central places). Developed and tested in Southern Germany this model describes the distribution of urban settlements spread uniformly across the landscape in a hierarchical form (Potter 1995). This traditional model however, is based on the assumption that the areas are developing economically from within, and so while it

worked for European countries it does not initially apply to the development of cities in the Caribbean. The Caribbean region was developed from abroad and the newly mercantile economies of the colonies developed without the framework that the European colonist countries had already in place. Thus new urban models developed to describe the evolution of urban development in the New World. The ideas put forth in the Central Place Theory, however, do return in the more mature stages described in more recent models developed for the Caribbean (see Potter below).

The Mercantile Model

Vance's model of urban settlement is based on mercantilism and colonialism, the processes that are at the root of the highly urbanized nature of Caribbean cities today (Potter 2000). This model of settlement and development is thus highly pertinent to the study area as it developed thru the forces of the global political economy that Vance cites as the cause for the distortion of Christaller's model.

The Mercantile Model describes high levels of development in the form of linear- coastal concentrations and limited inland lineaments. In fact, Vance's model provides a chronological description that shows each step in the colonial development of Caribbean cities. There is initial phase of development at one main point that becomes the major urban development and further development inland from the major gateway along main routes. The last stage of the Mercantile Model harks back to Christaller's central place type settlement with the infilling of urban centers.

The Plantopolis Model is a local historic variant of the Mercantile Model for the Caribbean region (Potter 2000). Rojas and Potter (2000) acknowledge the foundations of the economy in the globally oriented plantation system and map this into the evolution of the settlement system they describe.

Stage one of the model describes the plantations that form self-contained bases for the settlement pattern so that only one main town performs the trade, service and political control functions for the country. The second stage begins following emancipation as small farming communities develop around the plantations, adding another layer of settlement but not affecting the primacy of the main city. The final stage, and the one that is most applicable as it is still evident in the current Caribbean urban structure, begins in 1950 and shows an extension of the highly polarized pattern of development established earlier creating Mini-metropolitan regions.

This final stage shows a situation where the main urban - suburban zone now contains urban places (CBD, low-income housing), limited industrialization/manufacturing, modern retail forms, tourist-oriented areas and elite residential enclaves in marked contrast to rural areas. The areas of the original colonial development have continued to expand during the modern period and instead of eradicating the rural-urban unbalance that has historically existed, more complex forms of development have occurred within the existing urban core.

The high degree of urban primacy put forth in the previous theories is a direct result of the Caribbean's colonial heritage. Urban settlements, especially ports, became the focus of economic and administrative activity as the gateway into the colony for the governing powers. This colonial power - colony relationship led to a spatially uneven pattern of growth that strengthened in the following decades as the development process moved from dependence on the colonial powers to dependence on more developed nations that invested and traded with the nations.

2.3 Urbanization in the Caribbean

Urban growth in the Caribbean and Latin America is also at the forefront of urban research (Pacione 2001). The most striking feature of the developing world in the last twenty-five years has been urbanization, which varies from one region to another (Ogu 2002). In fact, within the developing world there has been increasing divergence in paths of development (Arn 2002) and urbanization. Linked to development, structural adjustment and economic development have brought about dramatic changes in the cities of Latin America and the Caribbean (Carrion 2001).

Numerous researchers investigated the idea of developing world growth and urbanization, particularly the individuality of areas within this broad region. Dick et al's (1998) investigation of Asian cities as separate from other Third World cities, and the effects of globalization on them is one good example of this. Carrion (2001) stated that even within the same countries urbanization is varied and that in fact, it is impossible to define *the* Latin American city. Drakakis-Smith further supports this theme with the idea that "any review of the state of the physical environment in Third World cities must contend with the immense variation that exists" (Drakakis-Smith 1995, 7). As such the Caribbean cities with their "bewildering diversity" (Conway 1991, 227) vary greatly from others in the developing world as well as from each other. While the Caribbean cities share many historical aspects as part of their colonial past, the variation of colonial powers, natural resources and post colonial political economies resulted in different levels of development and urbanization unique to each nation.

With this great variation within the region is there a model that can be applied to Caribbean cities? Griffin and Ford's (1980) model of the Latin American city structure provides research on how urbanization is different in the Latin American area than in North America.

While the model contains many of the factors that exist in Caribbean cities (such as the CBD and the squatter or self-built housing issues) the Caribbean cities, and particularly Port of Spain, vary because of a difference in size and colonial history (British versus Spanish). The model does however provide a good base for investigation of the urban structure of Port of Spain.

One of the most important thoughts that came to light through Griffin and Ford's model stemmed from the idea that cities in Latin America are developing in "a culturally specific set of economic and social conditions strongly modified by perceptions of urban space" (Griffin and Ford 1980, 442) that are distinctive from those in North America and so North American models cannot be used to shed light on the situation.

There is little doubt that the Caribbean region provides a model of urbanization that, while similar to other developing World areas, is not fully dealt with in the existing urban models. Potter (1995) hails the Caribbean region as an interesting case in the developing world as it is more highly urbanized than the rest of the developing World- despite its large agricultural sector. More than half of all Caribbean residents live in towns and cities, with 40-60% of the population living in the capital city (Potter 1995; Ogu 2002).

Potter (1995), however, sees the fact that the Caribbean has colonialism and dependency as a large part of its history, reflected in the shared socio-economic characteristics of open economies with strong agricultural orientations and a tendency toward staple monoculture, as an indication of why the urban areas in the region have developed in a certain way. Port of Spain is different from other Caribbean areas because of the existence of the oil and natural gas industry in the Trinidadian economy. However, it does seem to exhibit the tendency toward "dependent urbanization" and the skewed and "spatially uneven development patterns" (Potter 1995, 334) that Potter mentions, as the oil and natural gas resources are owned by foreign bodies.

2.4 Globalization

Globalization can be defined as a complex of related processes that serves to increase the interconnectedness of social life in the postmodern world (Pacione 2001). This process constitutes an important aspect in economic and urban development studies. The developing world has been increasingly subjected to transnational influences and “subordinated to global economic vicissitudes” (Arn 2002, 180). Development is a main factor in the process by which national economies are becoming internationalized. As stated by Carrion, “Countries and cities now depend to a greater degree on the dynamics and behavior of the global economy... to determine the patterns of production and consumption” (Carrion 2001, 209).

Within the Caribbean region globalization has always been a central part of development, though it has not always brought uniformity in that development. The Caribbean’s early incorporation into the international economy led to a history of external influences resulting in economic systems, labor forces and political institutions that are “forever subject to political and economic direction and dominance from outside and by outsiders” (Conway 1991, 227).

Trinidad’s economy has long been tied to the global economy. From its reliance on agricultural export markets to the foreign investment and ownership of the petroleum and service business on the island, it is dependent on the global economy for its livelihood. Even during the time of heavy nationalization in the 1970s Trinidad’s economic growth patterns followed the highs and lows of the price of oil on the international market.

Potter (1995) puts forth the idea that it is essential to view urbanization in relation to the processes of economic development and globalization. He makes an important point stating that in considering developing world urbanization, the development process and the global political economy must be highlighted. It is evident in the growth of nearly every Caribbean capital that

the newly independent Caribbean countries equated and perhaps still equate, development with the process of urbanization and industrialization.

These areas are also affected by the Demonstration Effect, which involves the rapid assimilation of North American and European tastes and patterns that are becoming more available through globalization. The present pattern of construction in Port of Spain further supports this idea. Calder Hart, Chairman of the Urban Development Corporations of Trinidad and Tobago (UDECOTT), puts the present plan for development into focus when stating that it is possible for Port of Spain to achieve a level of development on par “with any country in what is commonly referred to as the First World” (Reid 2003, 4) through the redevelopment of the city. This redevelopment, discussed later in this paper, mostly consists of the destruction of buildings and their replacement with large high-rise compounds.

Pacione (2001) echoes Potter in stressing that a global perspective for urbanization is necessary and denoting the reflexive relationship between the global and the local. He states the importance of the relationship between global forces and locally contingent factors in creating and re-creating the geography of towns and cities. He gives a list of global trigger factors of urban change that include the economy’s dominant influence and how advanced capitalism leads to globalization, an important issue when regarding Port of Spain.

Pacione (2001) believes that the evolution of the economy and resulting technological changes are important in regards to urban geography because each new phase of capitalism involves changes in what was produced, how it was produced and where it was produced. Thus new economic spaces and new forms of urbanization are required. Nowhere is this more evident than in the case of Port of Spain as it is the center for commercial and cultural activity for an economy that has experienced three different dominant sectors. Port of Spain’s development

from agriculture to modern industry seems to support this idea, but the question that faces us in this situation is really at what cost?

As the dominant sectors have changed so too has Port of Spain's role in the economy. The move from agriculture to manufacturing and the oil industry in Trinidad took place mostly outside of the capital for resource and land availability reasons. Now with increase of services industries there has been a focus on Port of Spain because it is the Central Business District (CBD) and contains the traditional amenities described in the urban models.

Pacione (2001) also mentions the fact that cities reflect the political ideology of their society and that politics impact city development. Politics and economies exist in a reciprocal relationship, he states, the outcomes of which can have a major impact on urban change especially in planning policy- the issue at hand in this study. Most importantly is the stress that these factors are interrelated and operate simultaneously along with other local-scale factors to influence urban change. The parliamentary system in Trinidad and Tobago with elections every four years means that often when new political parties are put into power urban planning schemes and other policies are drastically changed or discarded. In the history of planning in Trinidad and Tobago there have been only three Port of Spain development plans approved by the Parliament, despite the fact that there have been over fifty draft plans. The current administration ignored all the draft plans done from 1995- 2002, including the one referenced for this study, and are currently devising a new Port of Spain plan.

2.5 Urban Planning

In many cases, urban planning in developing countries is a product of Western colonial legacies. Recent planning policies also use standards borrowed from Western societies. This approach to planning however is not appropriate as it attempts to create “Western” cities in developing countries- even though the social, economic, cultural and technological circumstances are very different (Ogu 2002). In the case of Trinidad, the capital city developed under British colonial rule and as such Port of Spain developed as a British outpost – initially an economic node used to provide raw materials to the motherland and distribute finished goods sent from England as well as a point to keep control and influence over the colony. As such the city is built on a grid street system, peppered with small parks and oriented to the port.

Current urbanization studies now state the idea that urban policies need to shift from containing urban growth to guiding it (Drakakis-Smith 1995). Citing the Urban Foundation and World Bank policies that make improvement of urban productivity the number one issue in development, Drakakis-Smith states that there is an “underlying determination that cities should continue to play a leading role in underpinning economic growth” in the developing world (Drakakis-Smith 1995, 5).

Indeed in many parts of the developing world, planning is not a traditional activity (Cornell and Lea 1993). With development, governments are increasingly adopting the private sector’s “orientation towards profitability as a criterion for public investment” (Carrion 2001, 215). The governments of developing countries often see other urban issues as secondary to problems of economic growth and politics and are driven by profit motives. In fact, often it is the city planners that are direct or indirect beneficiaries from uncontrolled development (Drakakis-Smith 1995). Thus, governments in the developing world face the problem of several conflicting

processes and ideas that affect urban management (Drakakis-Smith 1995). International emphasis on community empowerment and participation in the planning process (Ogu 2002) is often offset by the push from institutions like the World Bank to ensure economic development.

Ogu correctly states, “urban development and planning are for the people and should therefore take due cognizance of the social, economic, cultural and related circumstances in any city, country or region” (Ogu 2002, 38). However, when the historical aspect of the urban environment is considered seriously, it can sometimes complicate urban design decisions and slow down the pace of development process (Lim 2000).

Trinidad’s urban planning is mainly based on money and the economy. The government’s planning schemes centered on sugarcane extraction, industrial and manufacturing services, and most recently the oil and services sector. One of the sources of this study is the lack of current urban planning in Port of Spain that takes into account the preservation of the “face” of Port of Spain and the historical aspects of the city. Planning is now focused on international trading and often does not take into account local endeavors or historical areas. While reports for the UDECOTT make mention of preserving the sense of place and historical building and facades (Halcrow Group Ltd 2000) the development plans show no real sign of this line of thought (Reid 2003).

The example given by Lloyd-Evans et al. (1993) of The People’s Mall in Port of Spain shows that schemes based on cooperation between the people and government can work and that in developing areas it is the people who should be able to shape their own destiny. While this example is not one specifically concerning the new service industry it speaks to the Trinidadian government’s willingness in the past to allow the native culture to play a large role in urban planning policy.

2.6 Sense of place and identity

The importance of the city in urban and cultural geography research is paramount. Indeed during the 1990s, interest increased within geography about questions dealing with the connection between economy and culture in urban development (Simonsen 2001). Cities possess “enormously complex communal histories and memories”, and each city uniquely evokes different feelings in its residents (Lim 2000, 270).

The notion of place focuses both on “physical environmental features and the emotional and poetic connection that people make with settings” (Lim 2000, 271); too often modernization becomes synonymous with getting rid of the past. The race to develop and become a modern city often leads to the destruction of entire older areas within cities to facilitate new development and this has become evident in many areas of the developing world as the “fastest and easiest solution is to relocate, bulldoze and then rebuild” in cities (Lim 2000, 271).

The results of this development as put forward by Lim and others are extremely negative. He sees the negative aspects of today’s urban environment, where dislocating forces of globalization and information technology are prevalent, leading to feelings of dislocation and insecurity within the populace. Lim asserts that we must deliberately attempt to save our cities and historic places and suggests that instead of wholesale redevelopment we must minimize the destruction of historical areas.

Despite the diversity in people, values, cultures and traditions within the Caribbean its habitants do share a regional integrity and regional identity (Conway 1991). The movement away from the colonial past has led to the creation of a national identity and pride in these nations (Conway 1991). In Trinidad and Tobago the last three centuries have seen the influences of the Spanish, French, Dutch, British, African and East Indian people who came each bringing their

tokens of national identity (Watterson 2002). It is from the mixture of these identities that the Trinbagonian national identity has evolved.

One outward expression of this identity is the buildings of Port of Spain, both grand and modest, where not just the architecture but also the building materials came from abroad. The story of these buildings is the story of Port of Spain's development - of the people who built the city and in fact the nation (Watterson 2002). The importance of these structures to national identity is also reflected in the fact that the landscape of Port of Spain is one of Trinidad's tourist attractions. Trinidad does not have many of the usual tourist attractions of other islands but does have its historic buildings including the Magnificent Seven located around the Queen's Park Savannah.

While Trinidad is less vulnerable to natural disasters that might have destroyed historical buildings, it is growing faster than most Caribbean nations and the consequent pressures of new modes of life lead to the need for renovation and rebuilding. As such, this "attractive and revealing kaleidoscope of the past, reflecting the cultural amalgam that has created Trinidad and Tobago" (Watterson 2002, 7) faces deterioration as the city develops.

There are no studies available on how the urban redevelopment that is occurring and being planned for Port of Spain is affecting the local populace's sense of culture and belonging. In recent decades the media made mention of the loss of historic buildings and the effect that a dramatic change in skyline will have on the nature of the city - yet there has been no real effort to study this phenomena. What is clear is that the government's National Development Concept Plan (NDCP) has as its main objective to solidify Port of Spain's role as the dominant economic center of the nation, with mass urban redevelopment that includes the construction of new high rise "First World" buildings (Halcrow Group Ltd 2000).

CHAPTER 3 - METHODOLOGY

3.1 Overview

Baban et al. (2001) mapped the tropical area of Langkawi Island, Malaysia using remote sensing and Geographic Information Systems (GIS). GIS is a relatively new technology in the developed world and has spread at an incredible rate through state and private organizations, but in the developing world there is not much literature on using GIS as a tool for research (Ramasubramanian 1999). GIS can be used to manage land use by allowing researchers to look at physical as well as socio-economic data. GIS is a powerful tool for compiling, analyzing and displaying data for governments as well as urban planners and local organizations involved in urban planning.

GIS implementation in developing countries is embedded in the development of policies and programs, and in this context of urban planning can be most helpful in maintaining the urban landscape of Port of Spain. When combined with remote sensing technology, GIS can provide additional analysis of factors that often cannot be completely quantified from the ground level (Stewart 2001). Rindfuss and Stern (1998) explain the possibilities and positive effects on social science that remote sensing data can support. Successful urban planning for Port of Spain will require reliable information and these case studies give positive examples of how remote sensing and GIS techniques are capable of providing that information.

Initial research indicated an emerging GIS presence in Trinidad and Tobago with several government institutions using it as a base for operations such as The Water and Sewage Authority of Trinidad and Tobago and the Central Statistical Office of the Ministry of Planning

and Development. Organizations such as the GIS Society of Trinidad and Tobago also promote the use of GIS.

In fact, two major GIS projects in Trinidad and Tobago reside in the Ministry of Agriculture, Lands and Marine Resources, State Agricultural Land Information System (SALIS) in the Land Administration Division and The Centre for Caribbean Land and Environmental Appraisal Research (CLEAR) at The University of the West Indies, Faculty of Engineering. However, public access to actual data proved more of a problem. Also the quality of data and its form (availability in digital format particularly) put up barriers to analysis.

Census data is used as the primary data for much of the analysis done in this study. Census data is derived from individual counting units and so gives the most detailed level of information available. The census provides information on individuals as well as actual spatial locations and can be a good basis for spatial analysis. However, in most cases, the specific locations of respondents are kept confidential to protect individual rights. As such, the information available for the study covers a slightly broader land area with the information collected by the census aggregated into enumeration districts based on political - administrative boundaries.

In this case no comprehensive GIS data was available and in fact there were limitations to the data available in digital format about Port of Spain. As such, the digital base data was used and the census districts found on printed maps were digitized over the digital roads and boundaries that were available. The census data for each period was then entered into the geodatabase and aggregated to the census district level.

3.2 Data

GISCAD – Geospatial and Engineering Design Solutions provided digital landbase data of Port of Spain and the surrounding areas. This included Port of Spain boundaries, city parcel boundaries and roads. The data was provided in the ESRI shapefile format but did not include any attribute data other than feature names. Georeferenced topological maps that show detailed parcels roads and location of main landmarks, buildings and hydrology were also provided. The digital data was collected by GISCAD thru the digitizing of these topological maps and the use of GPS control points.

Hard copies of the data from the 1946, 1960, 1970, 1980, 1990 and 2000 Trinidad national census were procured from the Trinidad and Tobago Central Statistical Office. Data concerning population, the number of households, the number of dwellings, number of buildings and number of businesses was extracted from the census data in order to show a clear pattern. Two changes were made in the Census Enumeration districts, the first between the 1946 and 1960 census and the second between the 1990 and 2000 census that resulted in additions being made to the area considered Port of Spain. However only the enumeration districts that occurred in all of the industrial eras were used in analysis. As such the three districts that were added for the 2000 census were not included in the district level analysis and total numbers reported. Additional information about transportation and employment were also taken from the Central Statistical Office's Pocket Digests for 2001 and 2002, booklets that present national statistics in demographic and economic data.

The Greater Port of Spain (GPOS) Local Area Plan (2001) Technical Report from the Ministry of Housing and Settlement's Urban Development Corporation of Trinidad and Tobago Ltd. gave background information on the planning process as well as an outline of the most

recent complete plan discussed for Port of Spain (POS). The plan also provided several ratio indicators used in the analysis portion of this study. A collection of images of several buildings in Port of Spain from the 1980s and the current building sites will also be compiled.

The analysis consists of a compilation of maps and graphs showing the following characteristics for Port of Spain for each period:

- The Port of Spain boundary.
- Population in POS total vs. Population of Trinidad total.
- Population of each enumeration district in POS and the percentage change in population.
- Number of buildings in POS and the percentage change.
- Number of dwellings in POS and the percentage change.
- Number of businesses in POS and the percentage change.
- The vacancy rate.
- Opportunity for employment.
- Transportation routes.

Analysis is based on the images, maps and graphs to describe the changes in the city size and structure, population and migration, employment, transportation and infrastructure and land use (housing, commercial space, building use, environment and sense of place). The data is used to highlight the physical changes and increasing pressures that each industrial era brought to Port of Spain and discern which economic period most greatly affected the physical aspects of the city.

3.3 Definitions

Household: One or more persons voluntarily living together and sharing at least one daily meal.

In general a household consists of a father, mother, children and other relatives as well as other

persons sharing the household arrangements. A border or live in servant sharing meals with the family is also considered part of the households. A tenant, who makes their own arrangements for eating, however is considered a separate household (Halcrow 2000).

Dwelling: A residential structure that houses one household (Halcrow 2000).

Occupancy Ratio: Ratio of the number of households (or occupied dwellings) to the number of dwellings. A ratio of 1 equals full occupancy of all dwellings. A ratio of less than one indicates that vacancies exist (Halcrow 2000).

Vacancy Ratio: 1 minus the occupancy ratio gives the percentage of vacancies in the city (Halcrow 2000).

Average Household Size: The population divided by the number of households gives an estimate of the average size of each household. (Halcrow 2000).

POS: The city of Port of Spain as defined by the Trinidad and Tobago Central Statistical Office for census purposes (CSO).

GPOS: The Greater Port of Spain area as described by the Urban Development Corporation of Trinidad and Tobago (Udecott) (Halcrow 2000).

CHAPTER 4 - PORT OF SPAIN

4.1 Overview

Port of Spain (POS) is the capital city of Trinidad and Tobago. It is the financial center of the country as well as a key Caribbean region financial center. It also functions as the retailing and commercial center, the seat of government and administration office, the center for national cultural events, a national transport hub and an international transshipment port. As discussed previously, historical and cultural events and the global economy and political systems have fashioned and continue to fashion the development of the city.

Port of Spain's basic form, with its grid pattern and orientation toward the port speak of its colonial heritage and the functions it has served for its colonial rulers as well as foreign owners of industry within the nation in more recent times. Urbanization in this area increased in the World War II period with the exodus of agricultural workers to the city for higher wages and jobs in construction and other services that the presence of American troops encouraged.

This increase in urban population continued as agriculture became less important to the economy, both in Port of Spain and in other urban areas. Figure 4.1 (below) shows that 63% of the population lived in urban areas in 1970 and today 74% of the population lives in the urban areas (Central Statistical Office 2003). Trinidad, although considered a developing nation (CIA World Factbook 2003), does not exhibit the false urbanization that plagues other such areas (Clarke 1974). The large middle class has long been an integral part of the local economy and continues to play a role in the country's economic development. There are squatter settlements and a large informal bazaar economy that are now being officially sanctioned by the government

as shown in Lloyd-Evans et al.'s (1993) discussion of the formalization of street vendors in “The People’s Mall” in the heart of downtown Port of Spain.

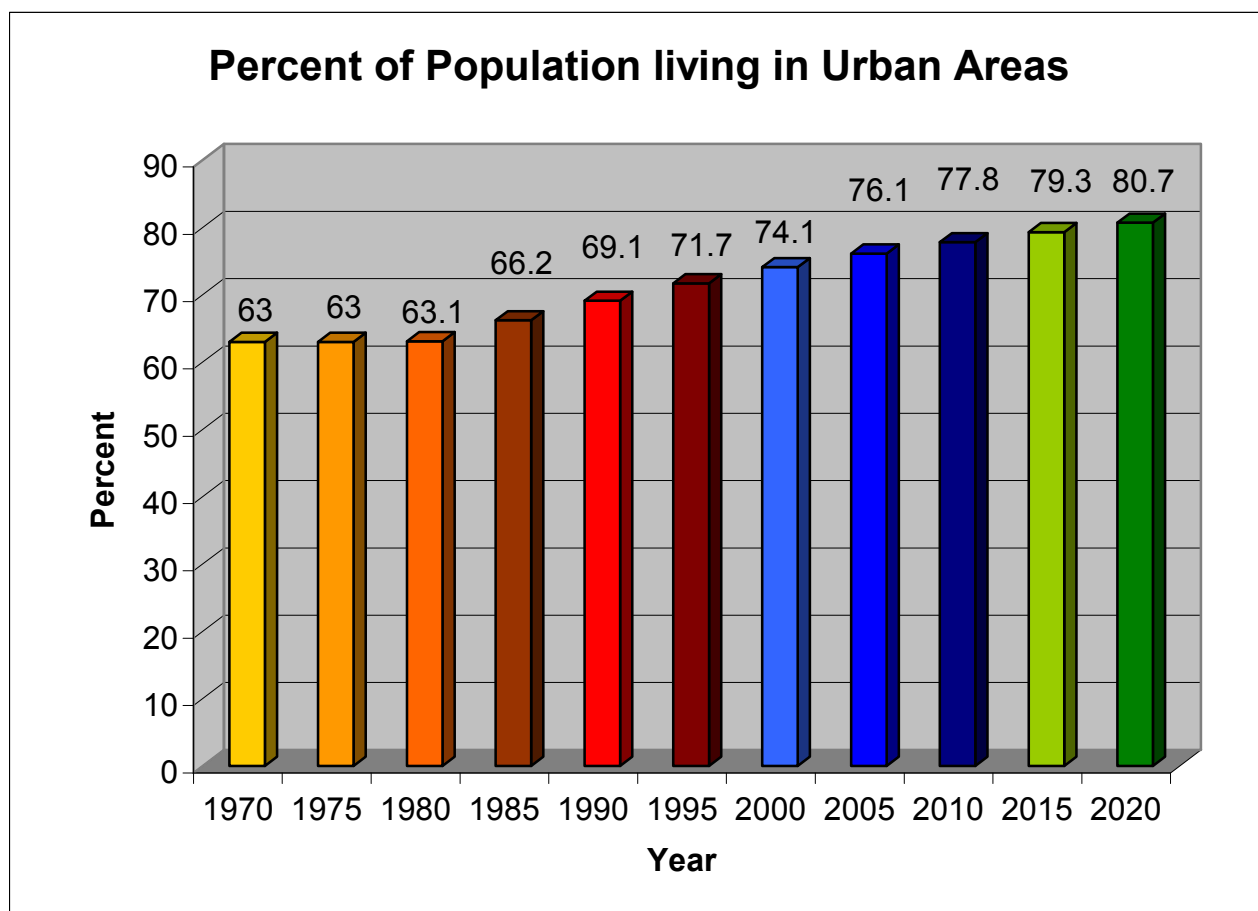


Figure 4.1: Graph showing the % of Trinidad and Tobago’s population that lives in urban areas.
Source: Central Statistical Office 2003.

4.2 Current Form of the City

Development in Port of Spain is physically constrained by the Northern Range Mountains and the Gulf of Paria to the south leading to an elongated East-West form. The city is divided into several areas (Fig. 4.2). The Commercial core and CBD form the Downtown area and adjoin the waterfront and port complex (Port of Spain proper, Port area and Sealots). An area of mixed–

use zones including offices, shops, housing, leisure and recreational activities including the Queen's Park Savannah surrounds the CBD (Woodbrook, Newtown, and East POS). Beyond this to the west, north and east are mainly residential areas and hillside providing a range of low-, medium- and high - income dwelling.

Manufacturing, light industries, storage, warehousing and distribution activities tend to be concentrated around the waterfront particularly east of the CBD in the East-West corridor. More recently there has been a trend toward the out-of-city development of shopping centers and leisure activities in malls and complexes along the main highway west of the study area and toward central and southern Trinidad.

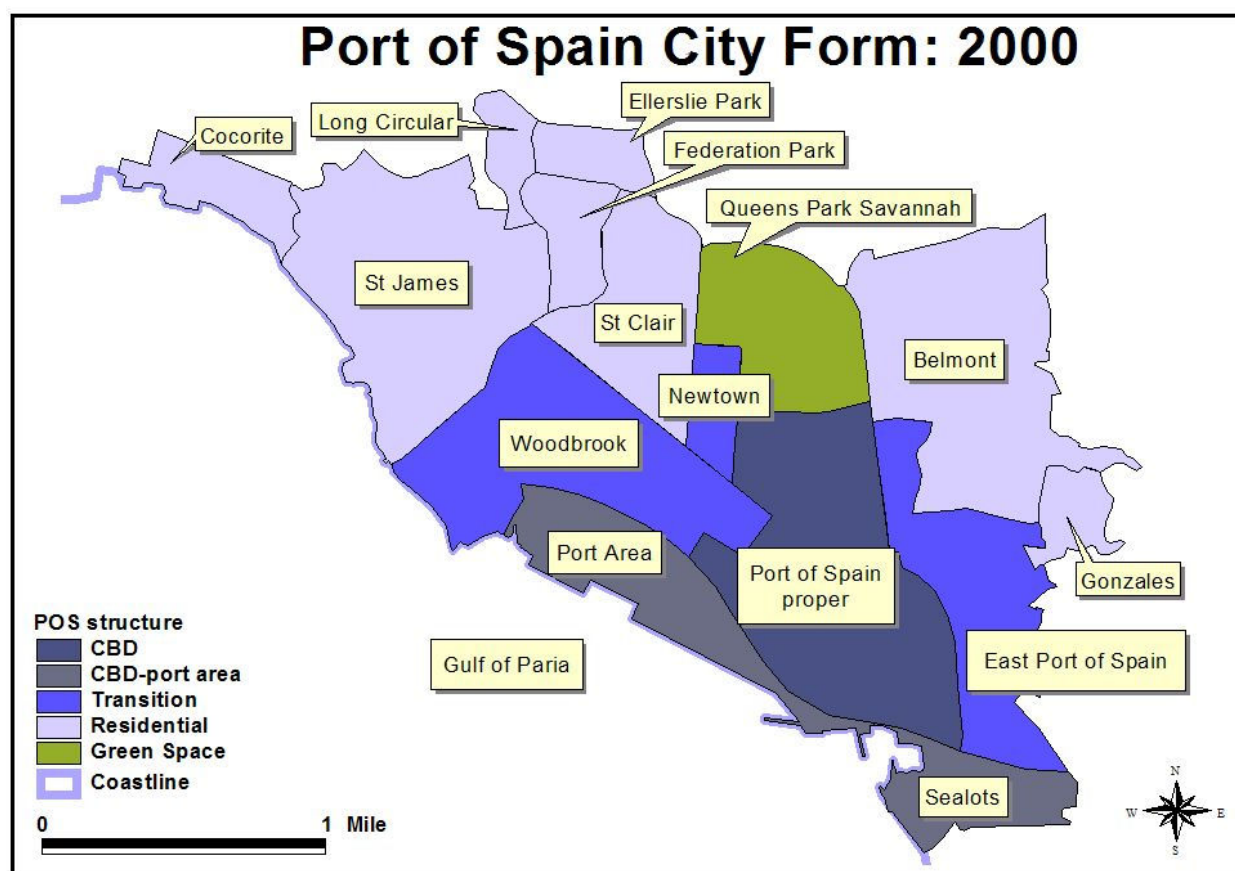


Figure 4.2: Map of POS City Form.

Source: UDECOTT 2000.

The city itself has evolved without a focus on planned influence or guidance in urban planning that has resulted in what Conway termed uncontrolled urbanism (Conway 1989). Growth in POS followed a sectorial pattern (Potter 2000, Conway 1981) with low income residential sector occurring from the central city to the east and the higher income residential developing to the west and northwest. Poorer urbanites and immigrants from rural areas settled to the east of the city in the 19th Century in high-density residential areas where the uncontrolled development of former small coffee and cocoa estates continued into the 20th Century. East Port of Spain and Gonzales developed in this fashion with the densities increasing in the 20th century. The wealthier inhabitants settled to the west of the city, first in areas like Woodbrook and St. Clair, and then further to the north and west as the better off citizens continued to distance themselves from the low income areas to the east. The current status of the POS districts is described below with information gathered from the Greater Port of Spain Local Area Plan (Halcrow 2000).

Cocorite contains a mix of residential and commercial property on flat land. It is the most western area of POS and the passage way for commuters from the large dormitory suburbs to the west of the city. This area contains households in the middle to lower income brackets, fair to poor infrastructure including drainage, water supply and roads and includes areas of squatter housing on the hillside up to 500 feet above sea level. One exception to the lower income households in the area is the development of Bayshore towers. Erected in the 1998 these seafront apartments cater to a high-income bracket.

St James is an area in west POS of approximately 155 hectares that is mainly flat, except for northern portions that mark the beginning of the Northern Range. In terms of residential settlement the area is medium density with middle to lower middle-income households. The

predominant form of housing is single or two-family dwellings on small lots (450m² and smaller). This district has a commercial core that flanks the Western Main Road, another main commuter route into and out of the western residential areas. Long Circular Mall, one of the country's first planned shopping centers is also located within its boundaries. Cultural and entertainment activities are prevalent in St. James. The area includes many popular nightspots, hosts the annual Islamic festival of Hosay and is the home of five steel band yards.

St. James also contains institutional land with the St. James Medical complex, a police station, post office, three cemeteries, a crematorium, eight schools and Camp Ogden, the headquarters of one branch of the Trinidad and Tobago Regiment. St. James has a rich and diverse culture and a significant East Indian population that influenced its architecture.

Woodbrook is a former sugar estate located in the western section of the city with a rectilinear block and street pattern. First settled in 1911 as a middle class residential area, residential stock in this district consists of single and multi-family units including apartments and rear plot and annex units. The district's buildings are mainly low-rise and free standing, of less than two stories. Commercial land use occurs in higher, more densely development along the main east-west traffic route of Tragarete Road, Ariapita Avenue and Wrightson Road. The area also contains a post office, a school, several churches and mosques, a fire station, a police station and two main public green spaces.

St. Clair Avenue divides the St. Clair district into north and south areas with two distinct characters. North St. Clair contains large residential plots with lavish houses. This area does contain a few foreign embassies but land use is mainly residential. Federation Park, Long Circular and Ellerslie Park show similar characteristics, though Long Circular does contain Long Circular Mall. North St. Clair also contains several of the "Magnificent Seven" buildings that

were initially large homes erected in the early 1900s and three important areas of green space. South St. Clair contains large plots but many of its buildings are currently used for upscale commercial uses. The Queens Park Oval, a national sporting venue, is also located in this district.

Newtown is a north-south grid street pattern area with mixed housing and commercial developments. Buildings in this area are mainly low to mid-rise, ranging from 4 to 6 stories in height. The area contains several churches, a post office, police station, school, corporate offices and embassies. This area also borders the Queens Park Savannah, an important national green space.

Port of Spain proper is the core of the city and the largest retail, administrative and employment center. As such it is well served by the transport system with several transport hubs and lots of pedestrian traffic. The area contains a Government Administration Quarter, ten schools and formal open green space with several squares and the Brian Lara Promenade. Historic buildings are peppered throughout the city, especially on the Queen's Park Savannah and around Woodford Square. Most of the country's high and medium rise office development is located around Independence Square, Park Street and increasingly towards the Savannah in this area. This district consists of mixed size plots with a north-south grid street pattern and also includes mixed use and residential areas. Some vacant land, underused and derelict buildings and surface car parks are found between commercial and residential uses, especially on the east and west edges of the district.

East POS and Gonzales are predominately residential areas but also include some commercial activity, schools, churches, heath and recreational facilities. There are undulating areas and over 63% of the settlement in these areas occurs on steep slopes. Land limitations

result in little potential for new development of any kind in these areas. Urban structure varies vastly in this area. There are small privately owned residential plots, public housing units that are mainly mid-rise and multi-family and squatter settlements which are well established. The area has poor infrastructure in several areas and is mainly low income with a high number of unskilled and informal laborers.

The Belmont area contains a flat area and some sloping terrain as it meets the Northern Range. Belmont is linked to Laventille and straddles the neighborhood of Gonzales. Belmont is one of the oldest settlement of POS with its beginning generated by Emancipation in 1838 when freed slaves moved from the plantations to eastern POS. This history shaped the physical layout as described in the Greater POS Plan. “Now Belmont’s streets reflect Belmont’s independence of mind. Not for them the orderly sameness of Woodbrook layout, so lacking in character that one could not, at a glance, tell a Petra Street from a Rosalino Street. If the streets in Belmont were planned at all, it must have been by someone with a devious mind, who preferred mystery to predictability. The characteristic of Belmont’s streets was and still is the casualness with which roads wander into lanes, and end abruptly in alleys without a word of warning.” (taken from “Memoirs of a Belmont Boy” author: Ralph Araujo)” (Halcrow 2000, 188).

Located below the southwest corner of East POS, Sea Lots consists of approximately 500 families, most low-income unskilled labourers. This is the most significant of the residential settlements on the Waterfront and is divided by the St. Ann’s River into two sections - Sea Lots East and Sea Lots West also called Katanga. The areas fringe the Sea Lots Industrial Centres and have direct linkages with the St. Vincent Caricom Jetty and the Central Market.

4.3 Population

The population of the greater POS area is estimated at 130,000 in some 40,000 households giving an average household size of 3.3 (Halcrow 2000). The city itself has a population of 49,031, which decreased over time, but there has been an increase in the number of households because of the national trend toward the reduction in household size. In 2000 Belmont and East POS contained the highest percentage of POS population with a quarter of the population in each area (Fig. 4.3).

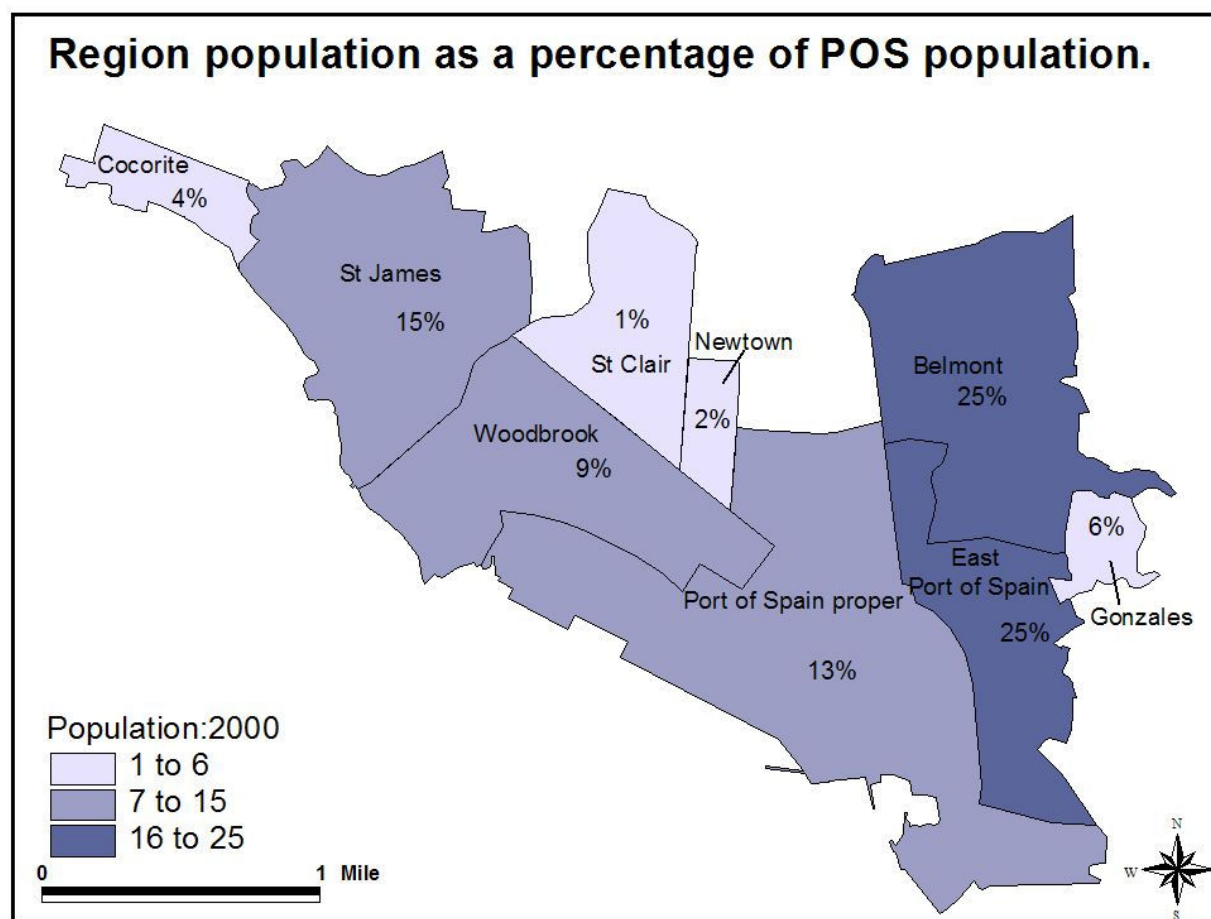


Figure 4.3: District population as a percentage of total POS population.

Source: CSO 2000.

4.4 Housing

Spontaneous housing encroachment, both squatter and planned, continues on the hillsides whilst in the heart of the city the penetration of commercial uses into established residential areas such as Woodbrook is changing the traditional character. The physical limitations of the northern range and Gulf of Paria and the consequential land shortage may limit further population growth in the future. In fact it is estimated that there is land available for only 6000 more households within the center city (Halcrow Group 2000).

The pressures for housing development due to the lack of suitable land resulted in a growth in substandard housing creating health and safety issues. These pressures have also led to difficulty enforcing planning policies to restrict development in unsuitable and environmentally unsustainable sites.

4.5 Employment

Approx 110,000 jobs are within the study area, 25% of the national total. Of these 80% are located within the city and a half of these are in the Port of Spain proper area. Some shift is beginning to outer locations within the area and outside POS (Halcrow Group 2000). In order for POS to retain its share of the total national jobs, 39,000 jobs would need to be created over the next 20 years. Considering the limits of land and residential housing this could mean a net inflow of 33,000 additional journey to work movements into the city.

4.6 Environment and landscape

Areas on hills surrounding the city face a combination of deforestation and residential development (both formal and informal) that led to increases in water run-off which contributes

to soil erosion, localized flooding and environmental degradation. Located in the area between the Northern Range and the Gulf, the city is heavily built up and redevelopment pressures are a constant threat on the few remaining city squares and green spaces (Fig. 4.4).

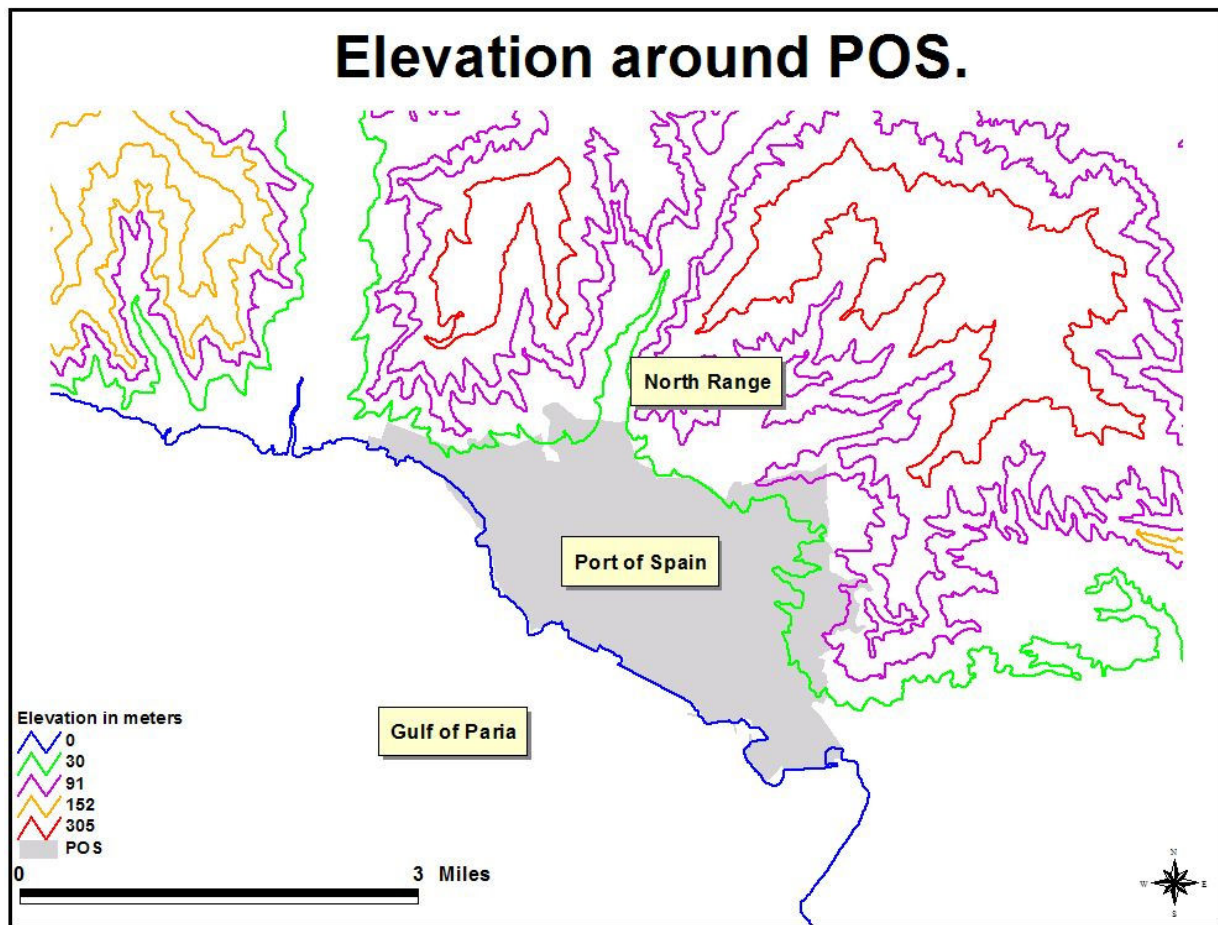


Figure 4.4: Map of POS location showing the contour lines of the North Range.

Source: Halcrow 2000.

Townscape and heritage buildings are also threatened. The Magnificent Seven, a group of turn of the century residences located around the Queens Park Savannah is an obvious example of the historical buildings located in POS. However, many other smaller buildings, while not listed as national heritage sites, are examples of early twentieth century architecture and enhance

the city's character. The townscape character of POS is in danger of being compromised by traffic-related conflicts and the mix of land uses and architectural styles now being developed. Additionally land reclamation could have effects on marine environment and drainage/flood control.

4.7 Transportation

The physical constraints to the north and south of the city led to the development of a main road system that is oriented east-west along the highway corridor. Development pressures in the POS area and along radial routes into the city from the north and west are increased by rising traffic volume – especially around the Savannah where traffic filters from Maraval, St Ann's/Cascade, Belmont, and Diego Martin (Fig. 4.5).

Five years ago 200,000 people were estimated to be traveling into the city each day with 40,000 of those traveling in the peak hours and 50% using public transport (Halcrow 2000). Since then, private vehicle registration is estimated to have grown at between 5-7 % per annum. As a consequence, 500,000 people may now be traveling into and out of POS each day- approximately 100,000 car trips and 20,000 – 30,000 public transport trips. If the current rate of vehicle ownership continues, coupled with rising national prosperity and incomes as well as falls in vehicle occupancy, traffic volumes could increase 70% over the next decade and double over the next 15 years (Halcrow 2000).

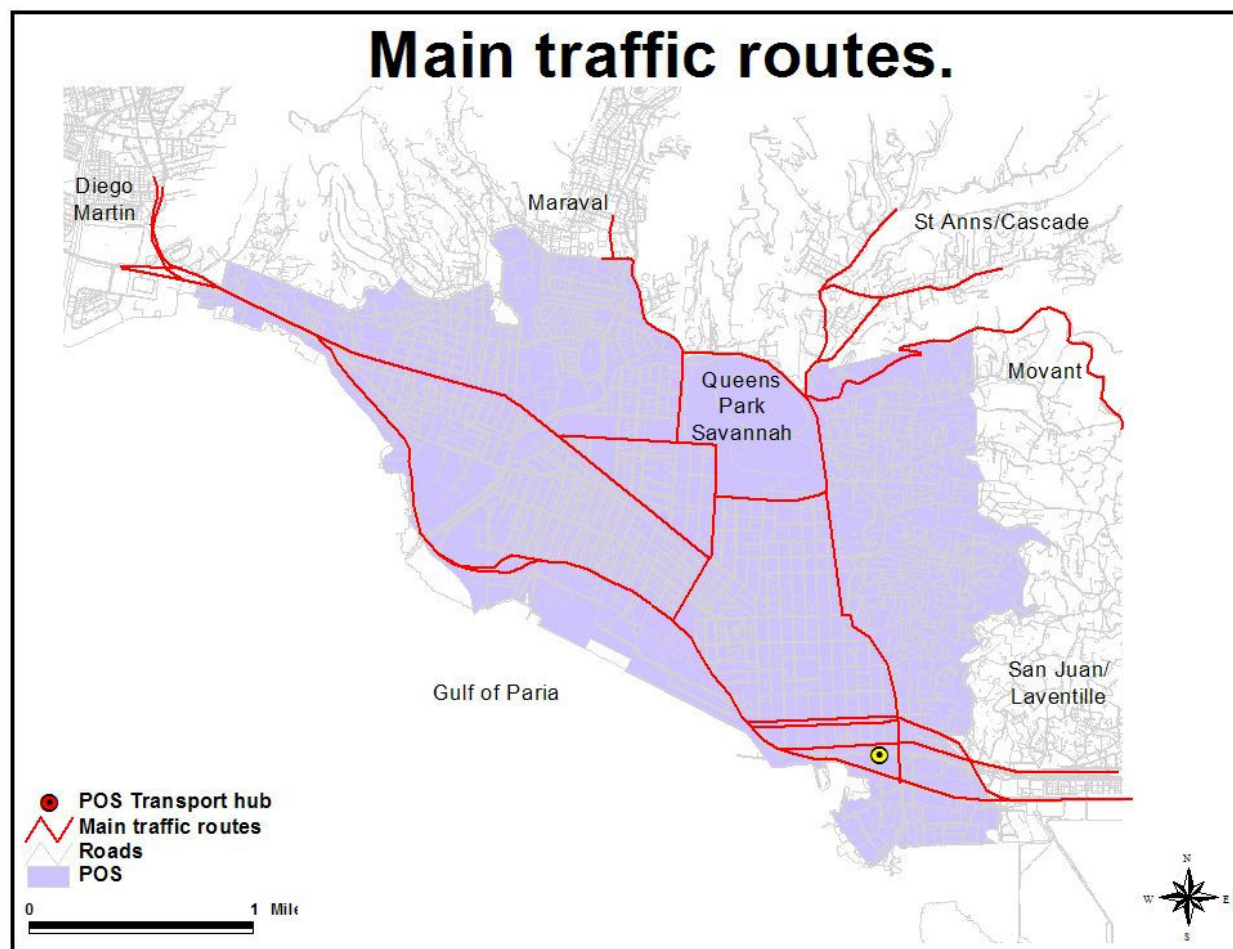


Figure 4.5: POS main traffic routes.

Source: Halcrow 2000.

4.8 Infrastructure

There is a robust distribution system for utilities within the main city, including water and sewer facilities and trash disposal. However, many households located on the hillside areas are not connected to the central sewer system and use of septic tanks, pit latrines and cesspits contributes to public health hazards. Flooding occurs in some areas, particularly at or near sea level and in locations with inadequate drainage. The development on steep slopes upstream, in areas like Laventille and St. Ann's, exacerbates flooding problems as debris and sediment are removed and deposited downstream.

CHAPTER 5 - ANALYSIS

Drakakis-Smith (1995) mentions several elements that shape the physical environment. Among those, the nature of economic growth in the city speaks to the issue at hand: what kind of industry developed in Trinidad, and with what affect on Port of Spain's physical environment?

Trinidad's development followed the development processes outlined in Potter's development theory (Potter 2000), moving from an agricultural base to manufacturing to the current economy with a large service base. The analysis of data for this study concentrates on the three main economic eras: The Agricultural Period from World War II to the 1970s, The Manufacturing/Petroleum Period from 1970 to 1990 and the Technology and Services Period from 1990 to 2000. These eras are explained in detail in the first section of this chapter.

Certain variables were chosen to reflect the changes in POS's environment. City boundary, perhaps the most simplistic of the variables focuses on changes in the political boundary of the city through the three eras. Population, migration housing, employment and transportation highlight changes in the residential character of the city, varying housing stock, residential lands use, traffic congestion and the pressures that accompany those issues. Land use variables, the number of buildings, years of construction and destruction and the number of dwellings and businesses indicate the physical changes to the city.

5.1 Three eras

5.1.1 Agriculture: World War II - 1970s

Defining the "Agricultural Period" for this study proved somewhat difficult. Like most post colonial nations in the Caribbean, Trinidad and Tobago's agriculture played a large role in

economic development by providing necessary monetary income as well as shaping the pattern of development both physically and socially. Agriculture, in its different forms, played a role in almost every decade of development in the country. However, the period from World War II to the 1970s best symbolizes the period for this era because the 1970s marks the beginning of oil replacing agriculture as a major economic input to the domestic economy.

Agriculture during the colonial period expanded rapidly with the cultivation of sugar, coffee, cacao (cocoa) and cotton. This basis of the island's prosperity continued through the early twentieth century. The World War II era provided a period of great change in the agricultural sector. The decrease of world trading meant decreased markets for traditional agriculture exports and limits on available food imports, both important to the nation's economy. This in turn led to more land being put to use for food production than in the period before the war, and the move away from a more mono-crop production. Food production actually increased as output shifted from export agriculture to domestic agriculture in order to fulfill the local and regional food demand.

The post World War II era saw the beginning of the end of the agricultural era in Trinidad and Tobago. Domestic agriculture, emphasized during World War II, shrank after the war as import markets opened up again. Export agriculture also began to face problems, which came to the forefront in the 1970s. The agricultural sector suffered from long-run decline, but rebounded in the late 1980s with government assistance. However, it did not come close to its status prior to the oil boom.

5.1.2 Manufacturing/Petroleum: 1970s - 1990s

Trinidad and Tobago entered the twentieth century with the discovery of oil in 1866. Even though the first extraction and exporting of oil occurred in 1909, this did not really boost the local economy. Trinidad became a main oil supplier in World War I, but this “boom” did not affect the economy at large as the oil was owned and controlled by the British government and other foreign interests. The post World War II era heralded the beginning of a period of change in Trinidad and Tobago’s economy. This era launched the demise of the agricultural sector, the rise of the construction and the service industry and led into the eventual domination of manufacturing, construction and oil and petroleum products on the nations economy in the 1970s.

In the late 1980s Trinidad and Tobago had an industrial base that was the largest in the Caribbean. Trinidad and Tobago became a strong producer of oil, asphalt, natural gas, ammonia and urea fertilizers, methanol, iron, petrochemicals and steel. In 1985 the petroleum sector accounted for 24 percent of Gross Domestic Product and nearly 70 percent of export earnings, and it affected most major sectors of the economy (U.S. Department of the Army 1998). During this period the most prominent changes in the structure of the economy occurred because of the petroleum and construction sectors.

5.1.3 Technology and Services: 1990s - Present:

In the last decade, the service industry and the resulting development of high-rise buildings in Port of Spain (POS) changed the face of the capital city. The successful decades of the 1970s and 1980s led to long-range progress in the technological and service development.

The 1990s saw the arrival of mainstream Internet and an increase in the availability and ownership of personal computers.

Seeing another avenue for foreign investment and following trends in countries like India and the Philippines, the Trinidad and Tobago government agencies began providing facilities for foreign companies to set up branch offices in the country. Private firms also began marketing offshore services such as data capture, data management and data entry, along with other clerical services.

This development towards becoming a more attractive area for foreign investment also led to an increase in the auxiliary services necessary for business flows. Banking, printing, legal and accounting services also increased in the country. These became necessary as the strengthened local economy saw an increase in business traffic. While there are other urban areas within Trinidad, Port of Spain experienced the most change during this period. As the historic and cultural capital it is seen as the main hub of the island. In order to facilitate the information flows necessary for the service industry more and more companies have chosen to locate there.

The strong presence of government in the city also plays an important role. The political economy of the area always plays an important role in the city development as well as economic policies.

5.2 Variables

5.2.1 City Boundary

Agriculture Era

Agricultural production and processing in Trinidad is concentrated in the central plains where flat land made it easy to set up and manage production. As such, the “Agricultural Period”

had no effect on the city boundaries of Port of Spain. Other than the initial development of the city in the colonial days, no major change to its size and shape occurred into the 1970s.

Manufacture Era

The Manufacturing era is marked by an increase in construction that while cyclical, depending on the oil price, was and still is a constant factor in the economy. All of the facilities for this type of industry developed outside of the city, however, and thus there was no real effect on the city boundaries of Port of Spain. This era did see an increase in the outer rim residential communities that surround the city and there was a decrease of population density within the city limits. The political boundary for the city did not change in this period.

Service Era

The political boundary of Port of Spain saw little change over the two previous eras, but during the Service era the boundaries of Port of Spain changed and there are indications that they will change again in the near future (Fig 5.1). Trinidad and Tobago's Ministry of Planning & Development enlarged the city blue print for the 2000 census, with the addition of three areas previously not counted as part of POS; Federation Park, Ellerslie Park and Long Circular. In addition the Greater Port of Spain (GPOS) area as defined in the Urban Development Corporations of Trinidad and Tobago's (UDECOTT) Greater Port of Spain Local Area Plan (Halcrow Group Ltd 2000) includes: "The City of Port of Spain Corporation area and parts of the Regional Corporation areas of Diego Martin to the north west and San Juan/Laventille to the east. It extends from Cocorite along Western Main Road around Upper Bourne's Road, Dibe and the lower Maraval Valley to St Ann's/Cascade, Belmont and Laventille/Morvant near the

boundary with Barataria on Eastern Main Road and the Beetham Highway” (Halcrow Group Ltd 2000, 8).

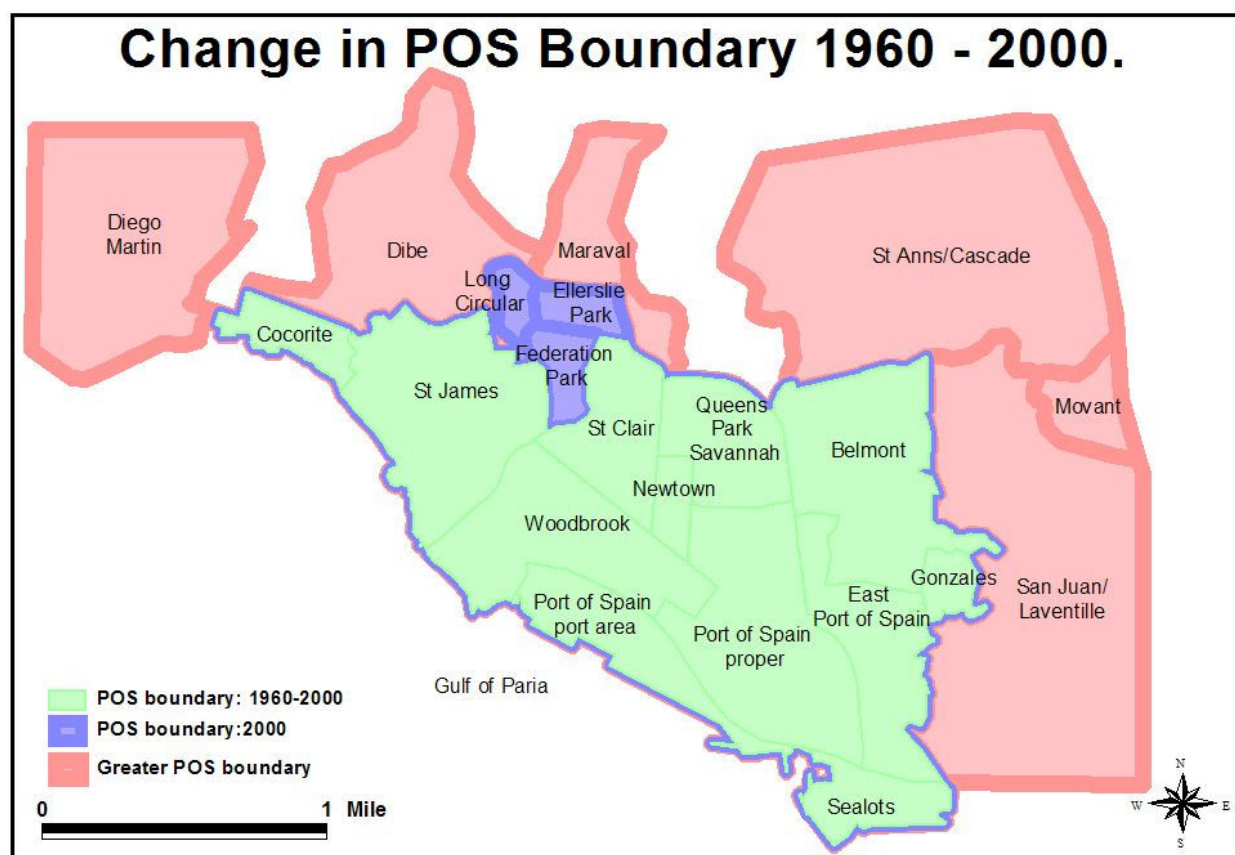


Figure 5.1: The changing boundaries of Port of Spain.

Source: CSO 2000.

UDECOTT is the foremost government body proposing and managing the urban planning policies of the nation. UDECOTT uses this study area because it reflects access and service linkages affecting the Central Business district (CBD) of commerce, business and retailing, transitional zones and residential communities (Fig. 5.1). The CBD consists of Port of Spain proper, the port area and Sealots. Transitional zones of mixed residential, commercial and recreation (cultural) uses occur in St. Clair, Woodbrook, Newtown and East POS. The residential communities of Federation Park, Long Circular, Ellerslie Park, Belmont, Diego Martin, St.

Anns/Casade, Maraval, Gonzales, San Juan/Laventille, Dibe and Movant surround the other areas of the city. Changes in this study area could be an indication of a further extension of the Port of Spain political boundary.

In addition, during this period the city's outer edges began to blur. Numerous squatter settlements on the hills north of the city and the constant push outward of commercial as well as residential land use resulted in areas that are not yet classified by the government. Plans for reclamation of land along the coast are also being discussed. Presently, the government is taking measures to formalize the squatter settlements and provide them with proper infrastructure. As such these "fuzzy" boundaries may soon be redrawn.

5.2.2 Population

Trinidad and Tobago

Trinidad and Tobago's population experienced a steady increase from 1871 to present (Fig 5.2). During the agricultural period, Trinidad and Tobago saw significant levels of population growth that was greatly affected by the migration of unskilled labor from other Caribbean islands. The nation's population almost doubled in this period increasing by 41%. In fact, the periods between 1931 and 1960 saw the largest population growth because of the combination of war employment, agricultural resurgence and the beginning of the manufacturing and oil sector's growth.

Urban populations particularly increased in this time. Three main urban areas existed in Trinidad as of the 1946 census; Port of Spain, San Fernando and Arima. From 1931 to 1946 all towns saw a total increase in population by 39,932 persons or 44.48 %, compared to the 32.87% of other areas. San Fernando, also known as the industrial capital, showed the greatest increase—more than doubling in size (100.95%). Its growth was consistently the highest of all three cities

since the 1911 census. Arima increased its population by 58.68% and POS, the least of the three, by 31.93%.

By 1980 Trinidad and Tobago reached the one million mark in population. While population growth slowed due to lower fertility rates and a national trend toward smaller household sizes, it does continue to grow often fueled by migration.

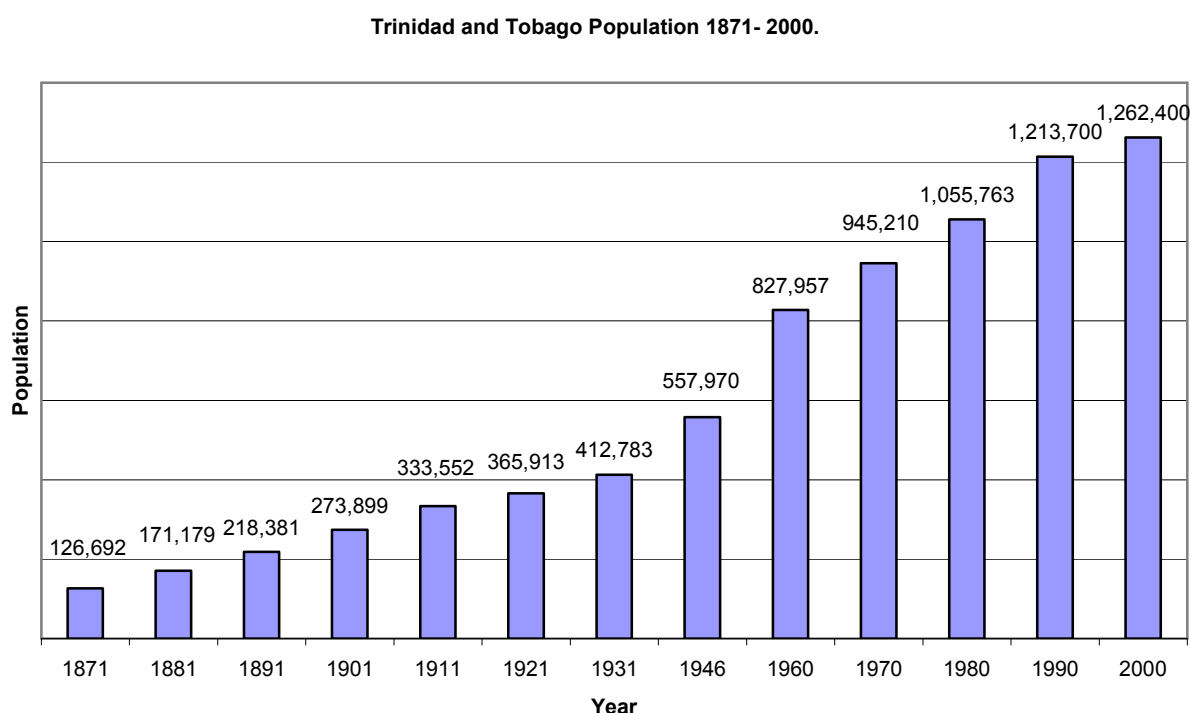


Figure 5.2: Trinidad and Tobago Population.

Source: CSO 2000.

Port of Spain

The population of POS grew steadily from 1871- 1960 (Fig 5.3), and at the same time its share of the national population decreased (Fig 5.4). There was a large increase in the period between the 1931 and the 1946 census. During this period the population grew 31.93%, the second largest increase since 1871. While substantial, this increase was less than the national

increase and the least of the three urban areas of Trinidad. In fact, POS population's share of the national population decreased slightly, from 17.04% of the national population in 1931 to 16.63% in 1946.

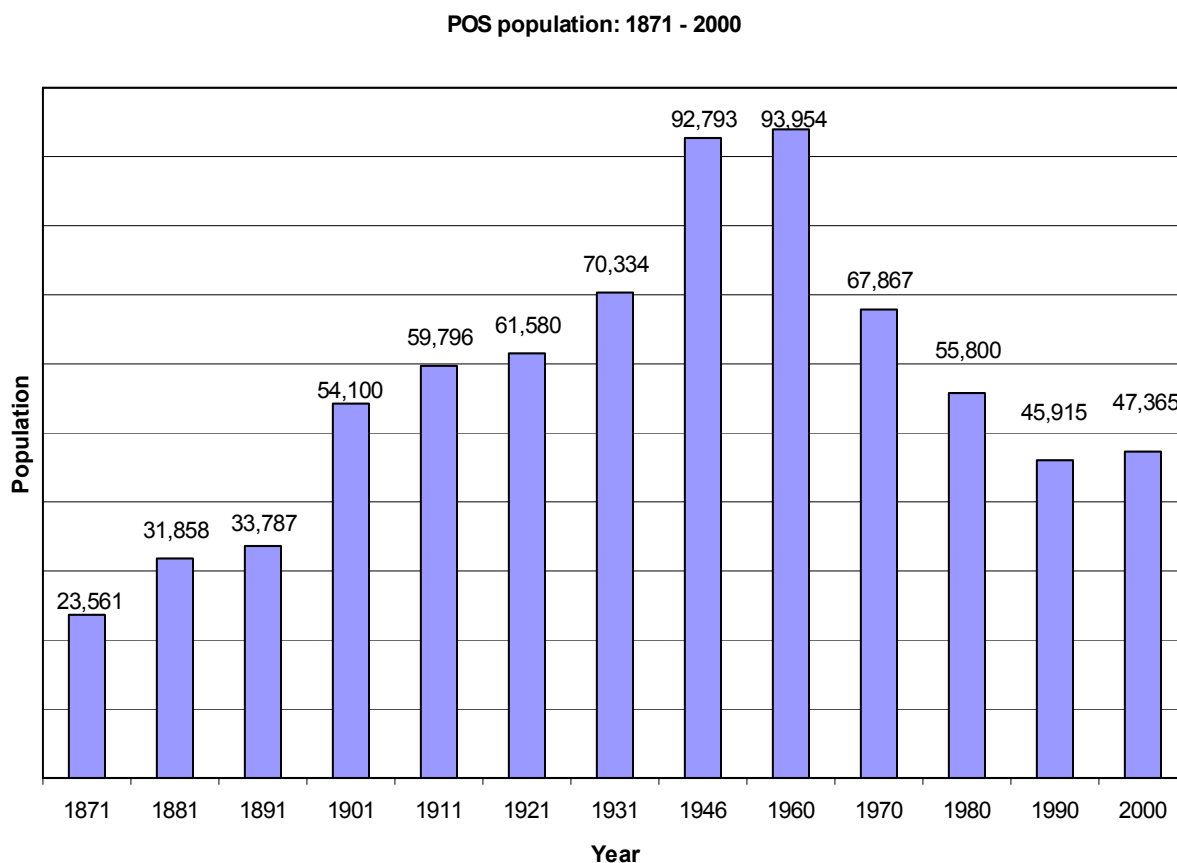


Figure 5.3: POS Population.

Source: CSO 2000.

The sudden jump in population between 1931 and 1946 can be explained by three main factors. The 1946 census was the first that included the area of St. James in the POS numbers. Previously, St. James was reported as part of the Diego Martin area. Secondly, Trinidad housed an American base during World War II. While the base was located outside of POS many officers and auxiliary staff resided inside the city. Lastly the American presence increased migration into POS from rural areas. Port of Spain was the main area for entertainment and

services and so the population swelled as unskilled labor was drawn to the city for employment in the entertainment and service sector. In fact, the 1946 census stated that POS was the urban area that received the most migration into its boundaries.

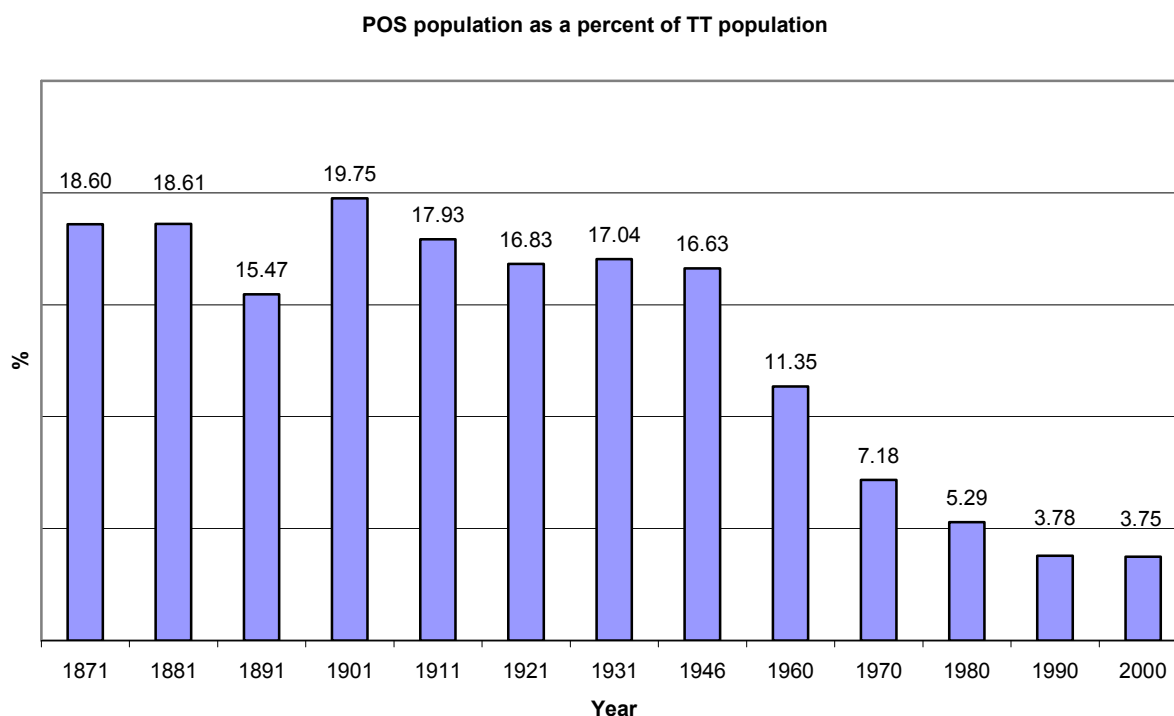


Figure 5.4: The percentage of the national population in each district.

Source: CSO 2000.

The residual effects of the war period, including employment opportunities in construction were felt until the 1960s, with the POS population growing slightly between 1946 and 1960. After the peak in 1960, however the population began to fall, becoming only 11.35% of the national total. There was a large drop between 1960 and 1970 with the removal of post war opportunities, rising cost of city living and return to an emphasis on agricultural production. The population of POS continued its decreasing trend, with the exception of the small increase

seen in the 2000 census. As of the 2000 census, the POS population was 47,365 people, 3.75% of the national total.

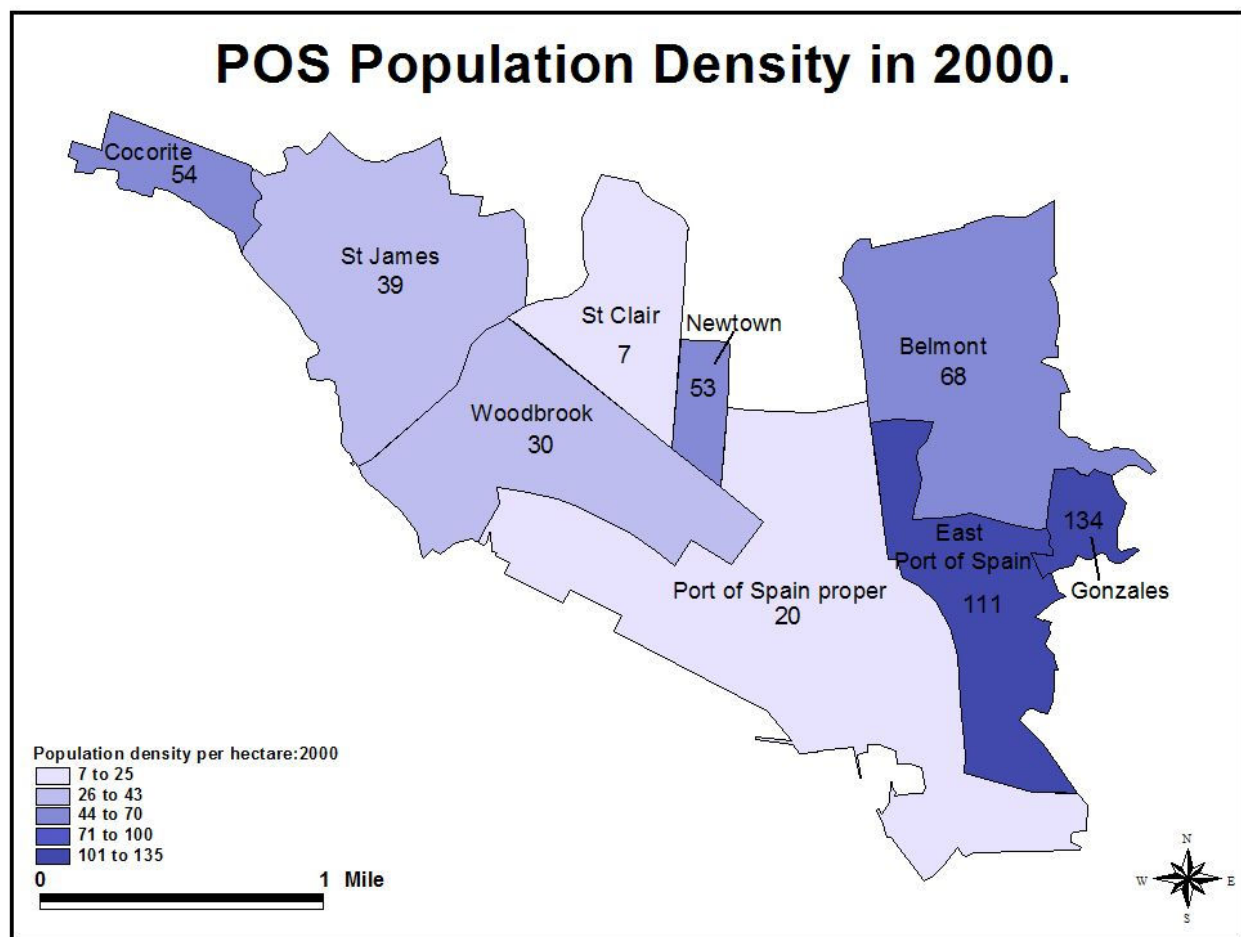


Figure 5.5: POS population density - 2000.

Source: CSO 2000.

In terms of density East POS and Gonzales show the highest densities with over 100 people per hectare (Fig.5.5). Other areas that showed a density of over 50 people per hectare were Belmont, Cocorite and Newtown, which are areas of multi-family housing. Woodbrook and St. James with traditionally single-family residences had a density of 30 and 36 people per hectare and St. Clair has the smallest density with only 7 people per hectare. St. Clair is a mix of large-lot, single-family houses, commercial properties, government buildings and green space.

Agriculture Era

During the agricultural period, Trinidad and Tobago experienced significant levels of population growth that was greatly affected by the migration of unskilled labor from other Caribbean islands. The nation's population almost doubled in this period increasing by 69% from 557,970 in 1946 to 945,210 in 1970. These migrants however came to seek work in the agricultural sector as Trinidad had some of the region's largest sugar plantations. Despite a 69% increase in national population, the population of Port of Spain remained steady during the early part of this period, population increasing by only 1161 people between 1946 and 1960 (1.5 %). In the later part of the period however, the population saw a 28% decrease from 1960-1970.

There was little rural-urban migration into Port of Spain during this period. The World War II era saw a boost in construction and other services as the American military base was established in Trinidad. However, where there was a small initial push of migration to the city (the population increased 1.5% from 1946-1960), it was offset by the increased need for domestic agriculture as the imports dried up and the resulting move back to agriculture and the move toward manufacturing led to urban-rural migration. The beginning of the petroleum industry boom in the late 1960s and 1970s also drew people away to areas in south Trinidad where the industry was established. As a result, the population of Port of Spain decreased by 28% between 1960 and 1970.

The post war departure of the American forces also played a role in this decrease. The departure led to the outflow of many of the people who had moved into the city to participate in war related employment, including prostitution. These people were forced to return to other areas in search of work and many went back to agriculture and petroleum. By 1970, the POS population dropped to 67,867 people from the 1960 high of 93,954 people- a 28% decrease.

The decrease in population occurred in all of the areas of POS. The largest decrease in actual people as well as in percentage of the population occurred in the areas of Port of Spain proper and East Port of Spain (Fig 5.6). These two areas lost over 6000 people and 30% of the population each within this period. Both areas consisted of high density, lower income housing and contained the first people to be displaced by the removal of American troops and most susceptible to rising costs of city living. These were probably the people who came to POS during the war years for positions in prostitution, as drivers and low skill construction workers and when those opportunities ended they returned to the rural areas, agricultural production and petroleum processing.

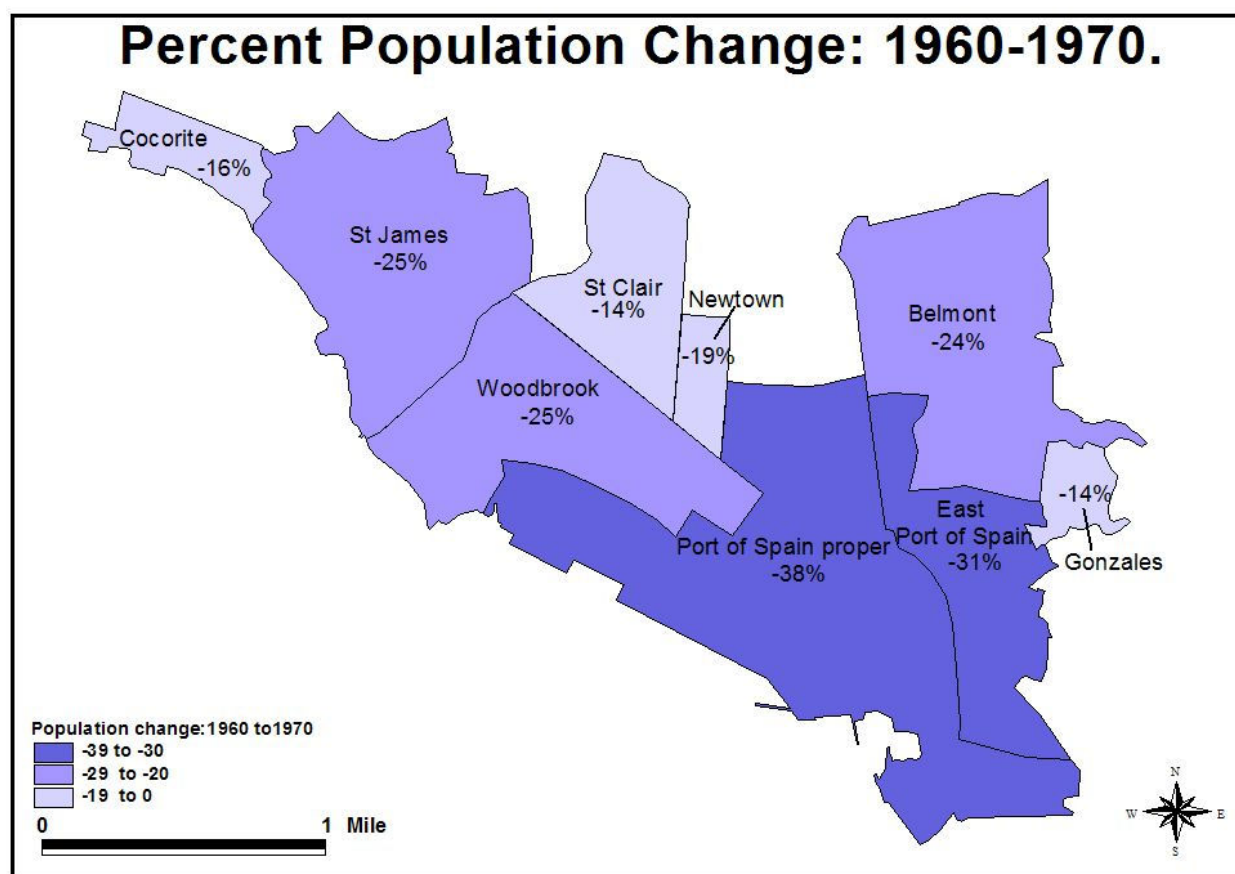


Figure 5.6: Population Change by district: 1960 - 1970.

Source: CSO.

Other highly residential areas such as St. James, Woodbrook and Belmont saw over a 20% decrease in population. Belmont, with a loss of 4,917 people is a lower income area and faced the same situation as East Port of Spain. St. James and Woodbrook were middle to lower income residential areas and so it is possible that they too lost people who returned to agricultural production. The remaining four areas also lost some population- but less than 20%. The Gonzales, Newtown and Cocorite areas were middle to low income areas that again were involved in the lower skilled employment. St Clair is a middle to higher income single-family resident community and so it is unclear as to why that area would have lost so many people, other than the fact that people may have moved out of the city to surrounding residential areas as the city began to grow with the boom years of the late 1960s and 1970s.

Manufacture Era

The boom of the late 1960s and 1970s drew people away from the rural areas as the economy improved and people migrated to the city for higher wages. This rural - urban shift was further spurred by the drop in the importance of agriculture in the economy and culturally as a way of life. During this period there were great regional imbalances in population distribution and growth as rural - urban migration caused a shift toward urban areas. Encouraged by the mechanization of agriculture and its decline in economic importance, offshore industrialization and population growth, more Trinidadians moved into urban areas, including Port of Spain and its environs. During this period of economic growth and increased standard of living the country also showed a growth in the population rate.

By 1960 POS's population peaked and in the period between 1960 and 1970 a large drop occurred. Continuing this trend, the city's population decreased between 1970 and 1980, and

again between 1980 and 1990. In 1990 the population was 45,915 people - the lowest recorded since 1901. Despite the increase in national population, within the central city there was a decrease in POS population. Overall between 1970 and 1980 the POS population dropped by 15.4% with a decrease of 2,458 people. This loss was about half of the 4,917 lost between 1960-70 but was still substantial. Between 1980 and 1990 the trend continued with a decrease of 2,742 people or 20.3%

In 1970-1980 the greatest loss occurred in POS proper because of continued commercialization of the area. POS proper lost 1099 people, a loss of 37.1% of the population during this time. There was also a significant loss in St Clair of 366 people (-34%) because this area consisted mainly of single-family homes and there was an addition of government buildings in the area. Many of the larger homes were converted into government offices. All other areas also lost population ranging from 13% to 21%. There was an increase in two areas - Cocorite and Gonzales. Both areas are lower income and the construction of multi-family homes during this period led to the increase in population density of the area.

1980-1990 saw loss of population in all areas. Belmont showed the highest number of people lost with 2,742 people, while Newtown lost the highest percentage with 37.4%. The population of the inner Port of Spain area saw a decrease during this period because of a change in national trends toward decreasing household sizes and declining fertility rates, coupled with out-migration because of limited space and the conversion of former residential space into commercial uses. Overall, all POS regions showed a decrease in population during the manufacturing era except Cocorite (Fig 5.7).

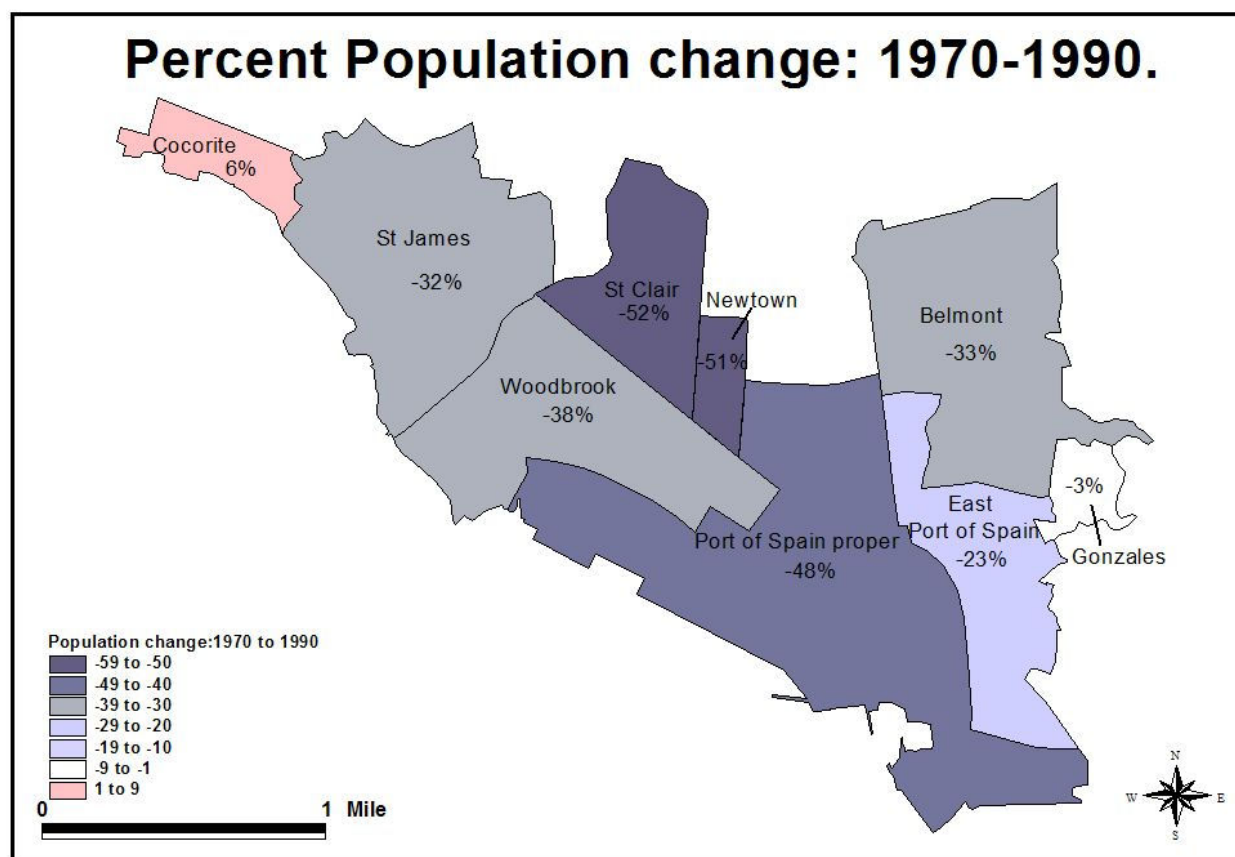


Figure 5.7: Population change by district: 1970 - 1990.

Source: CSO.

Service Era

Despite the national trends toward decreasing household sizes and declining fertility rates, the limited space and the conversion of former residential space into commercial use, the population of the city saw a slight overall increase of 3% from 1990-2000. This increase of 1450 people (.1% of the national pop) occurred in all areas except Woodbrook and St. James.

Small increases of less than 10% in Port of Spain proper and surrounding areas occurred because of the increase in multi-family and apartment dwelling (Fig 5.8). The Belmont area saw the largest increase in population, facilitated by the addition of multi-household housing and an influx of lower income residents. Lower income residents, previously located in squatter hillside communities often move further into the city to established housing as their means increase. The

effect of this trickling down can be seen in Belmont and Gonzales. Woodbrook and St. James saw decreases in population as increasing pressures of commercial activity continued in these traditionally residential areas leading to the replacement of the single-family homes with commercial enterprises.

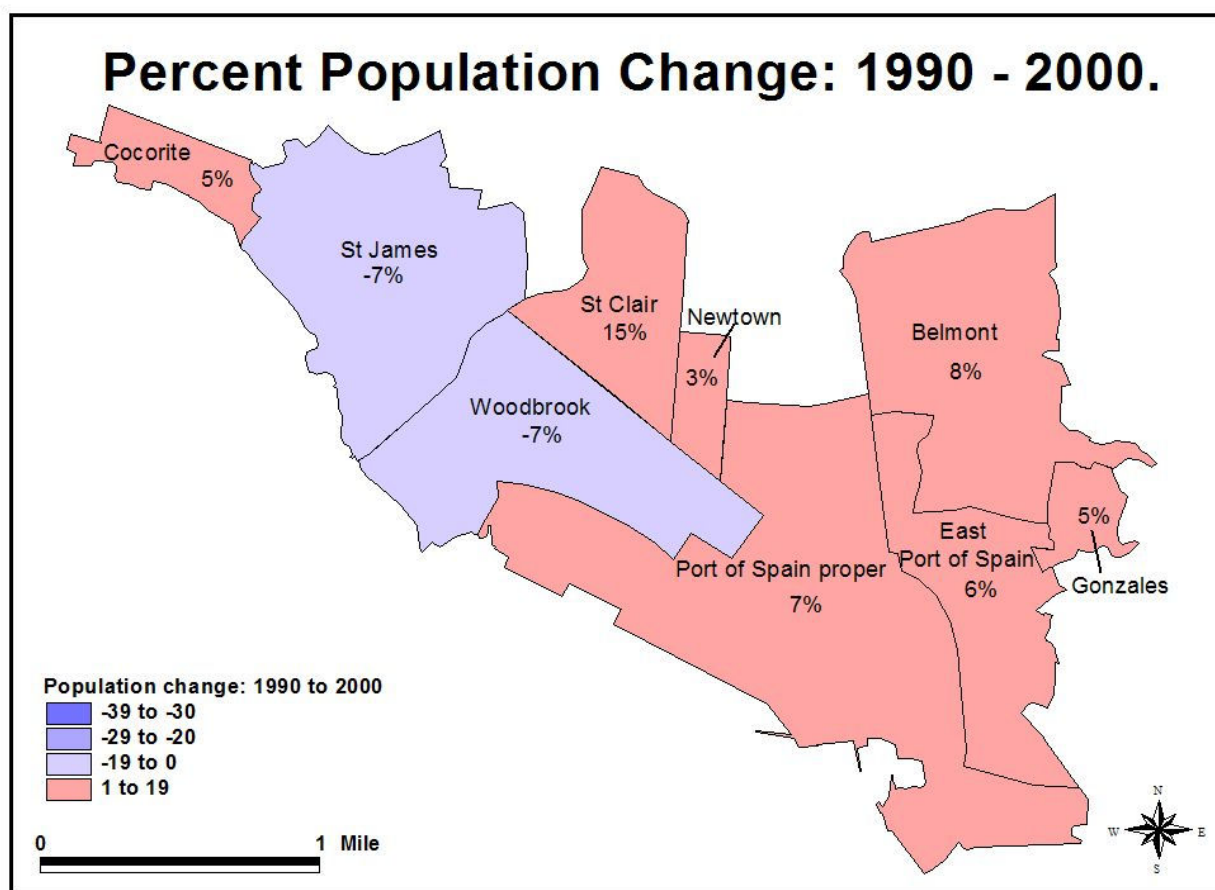


Figure 5.8: Population change by district: 1990 – 2000.

Source: CSO.

Rural-urban migration was an issue during this period. The emergence of service industries led to more entry level positions in banks, insurance, restaurants and retail establishments and added to the lure of better city life. A new type of migration also began. Return migration of nationals who were educated and/or lived abroad for some time became a

significant factor. Government schemes to reverse the “brain drain” effect of earlier decades encouraged the return of these citizens, most of whom returned to the city area or the residential rings around it and sought employment within Port of Spain.

The population of the surrounding areas also grew. The Greater POS population for 2000 was documented as 130,000 people – up from the 128,026 people in that area for 1990. The city maintained its balance of the population of the area with 36.4% of the population residing in the city- up slightly from the 35.9% of 1990. The city also maintained its share of the national population with 3.75% of the national population living in POS, down slightly from the 3.78% of 1990.

A growing economy and increased wealth, coupled with the return migration of college-educated nationals to fill high-income positions certainly factored into the increase in POS population. While no area within the city saw more than a 10% increase in population, this was the beginning of a trend that could continue as more multi-family housing is constructed in the area.

Overview

Port of Spain’s population steadily decreased from 1960 – 2000. This decrease in population is evident in all areas of POS, though those hardest hit were the CBD areas including POS proper, East POS and Newtown. The pattern of population loss occurred in waves from the center city outward (Fig 5.9). Traditionally residential areas such as Woodbrook, St James, Belmont and St Clair lost over half of their population due to increases in commercialization and increased land values.

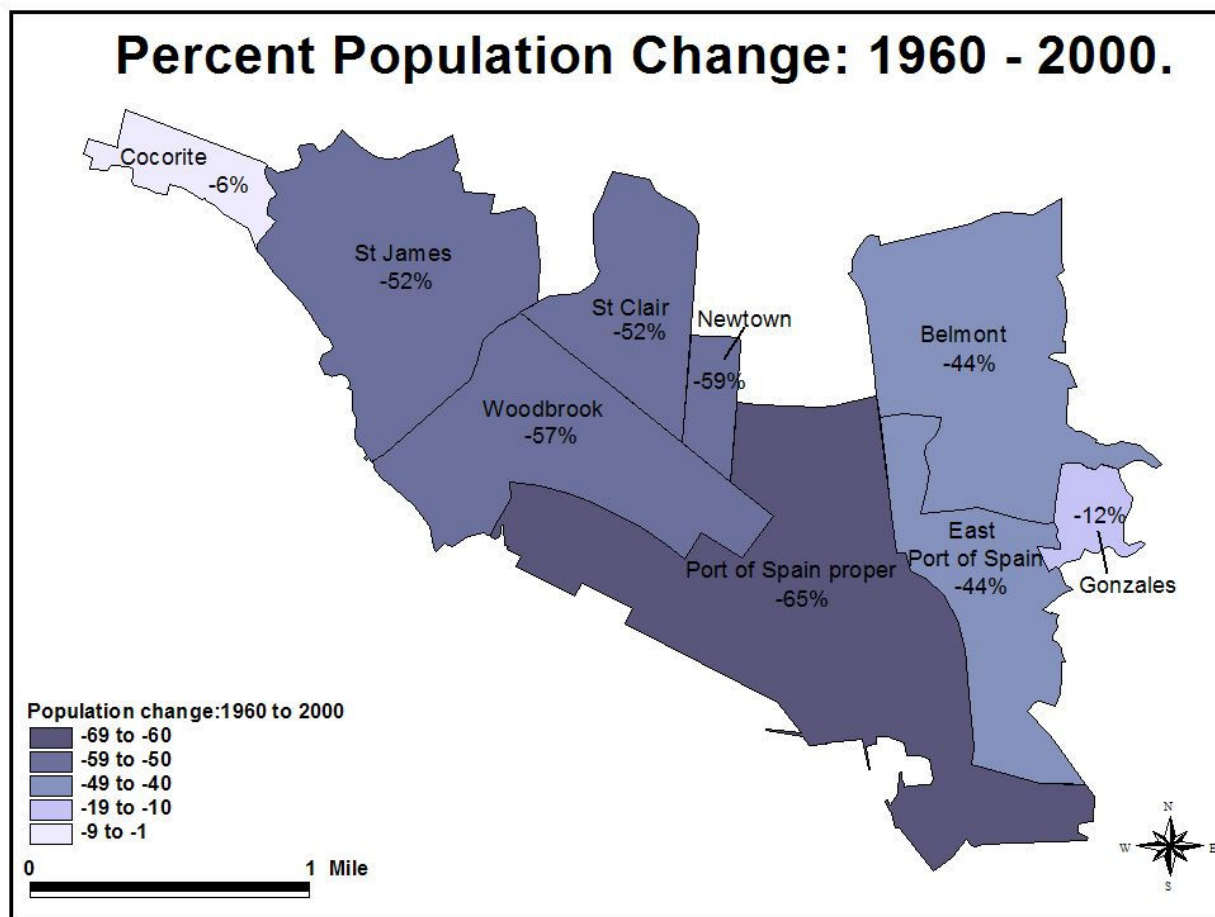


Figure 5.9: Population change by district: 1960 - 2000.

Source: CSO.

As POS's population dwindled the population of the surrounding areas grew, with the Greater POS area currently containing 130,000 people and the national population steadily, if slowly, increasing. Urbanization of other areas such as San Fernando in the south, Trincity and Arima in the east, densification in Port of Spain's outlying residential areas such as Diego Martin, St Ann's and Laventille and increasing development, both formal and informal, on the hillsides and coastline surrounding the city have taken the brunt of much of this population growth.

5.2.3 Housing

Port of Spain

Housing in the POS consists of a variety of types. Construction, age, tenure and service provision range from luxury waterfront apartments to hillside shacks lacking water, electricity and vehicular access. There is no comprehensive housing data available at the district level and no comprehensive data on housing construction dates is available after 1990. Today the areas of Belmont and East Port of Spain, both lower income areas, contain the most households, each with 25% of the POS households (Fig 5.10).

These areas contain several multi-level residential structures, including government-sponsored public housing, which explains this trend. The multi-family housing structure also plays a larger role in the POS proper area of the city, which contains 12% of POS's households. St. James and Woodbrook, traditionally single-family residential areas, contain the next highest tier of housing with 14% and 10% of the POS households respectively. The remaining areas contain less than 10% of the city's population, but are much smaller areas than the other districts.

In terms of density, East Port of Spain not only contained the highest percentage of households but also had one of the highest densities with 34 households per hectare (Fig 5.11). Gonzales, even though it only contains 4% of the POS households had the highest density at 38 households per hectare. Newtown and Cocorite also showed a household density of over 15 households per hectare, even though they are two of the smallest areas, because of the existence of multi-family housing in these areas.

Port of Spain proper contains 25% of POS households but is a mixture of residential, commercial and government buildings and contains a density of only 5 households per hectare. St. James, Woodbrook and St. Clair are traditionally residential areas but have household

densities less than 10 per hectare because they consist of mainly single-family housing and are susceptible to the extension of commercial development moving outward from POS proper.

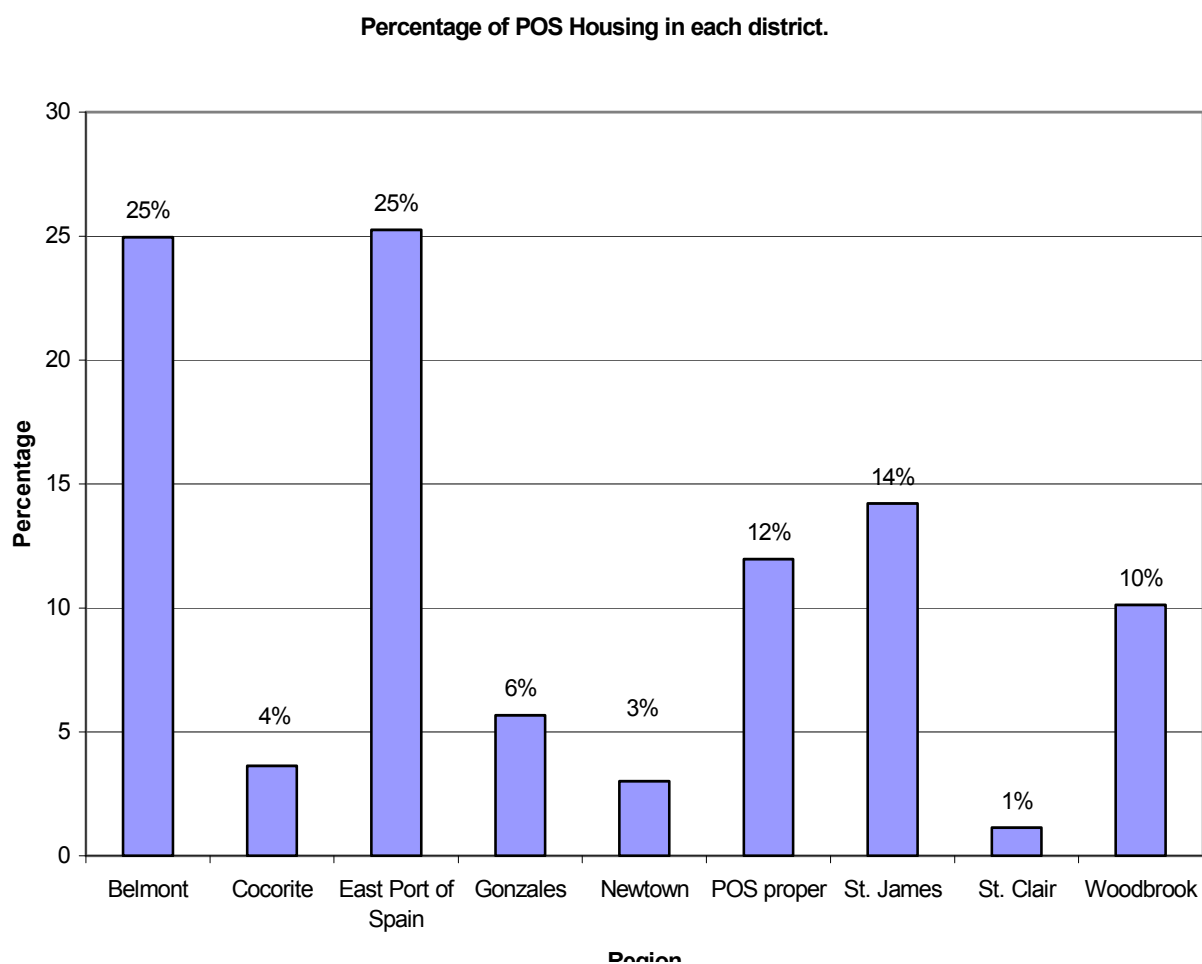


Figure 5.10: Housing by districts: 2000.

Source: CSO.

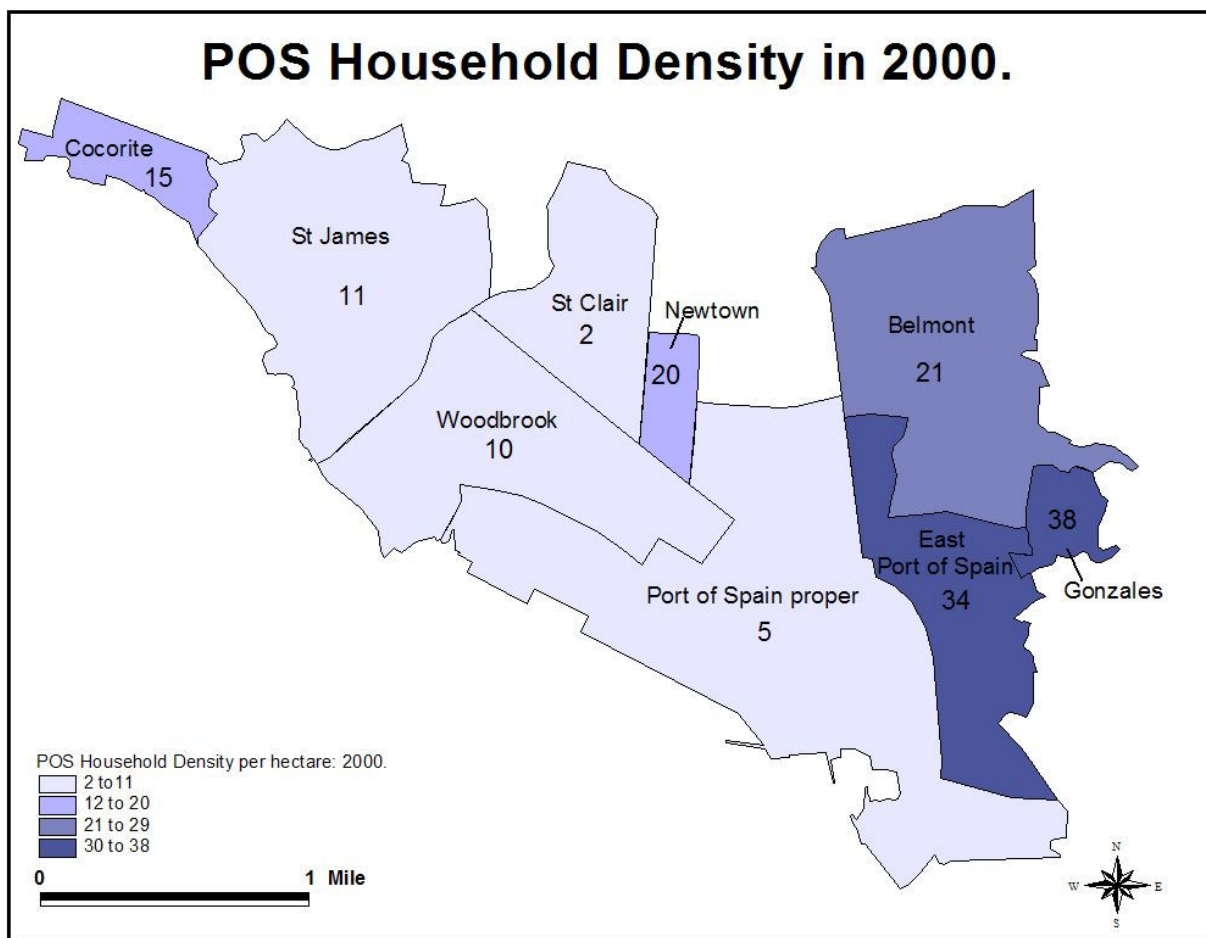


Figure 5.11: POS household density: 2000.

Source: CSO.

The number of households for POS as a whole decreased consistently since 1946 (Fig 5.12). The largest decrease occurred between 1960 and 1970 coinciding with the large drop in POS population. From 1970 onward the declining trend continued, though not as drastically, following the population trend and the national trend toward a smaller average household size. This decreasing trend in the number of households is indicative of three trends in the country. The first is the trend of declining fertility rates in the country as it economically developed and health care and contraception became more widely available. The second is the increase of

housing costs within the city. The third is the continued commercial development and consequent loss of housing stock of POS.

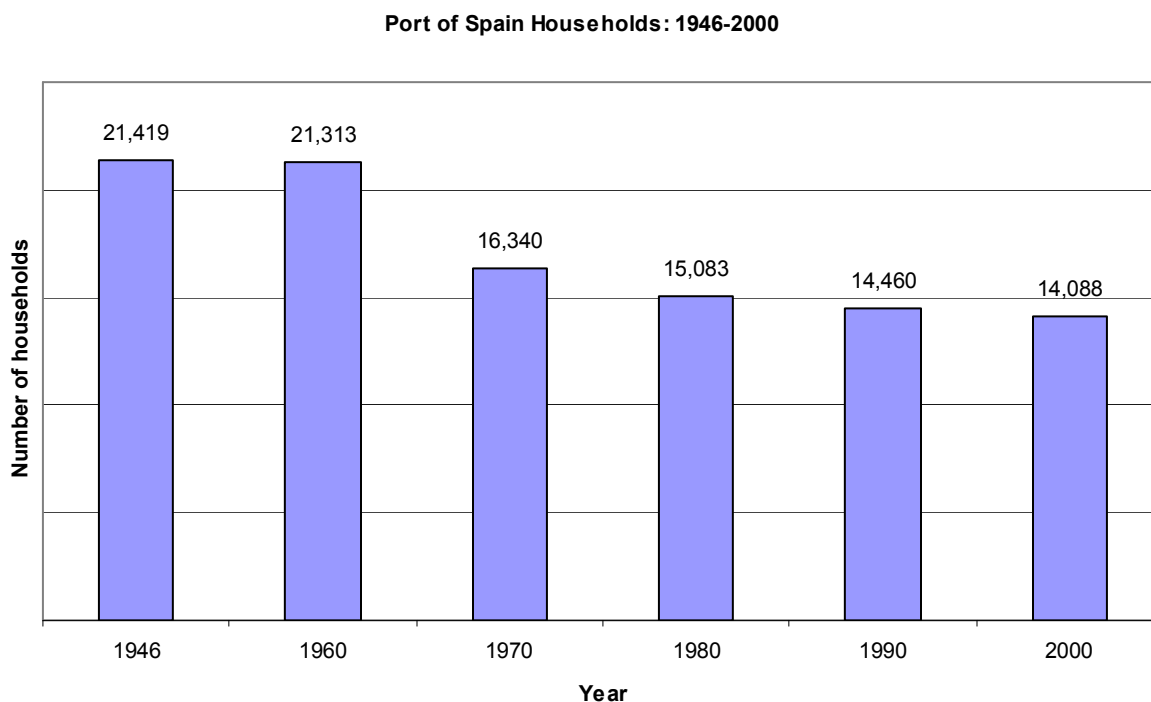


Figure 5.12: POS households 1946 - 2000.

Source: CSO.

However while the number of households in POS declined, the households in the Greater POS (GPOS) area increased steadily over the last two decades. In 1980 POS contained 39% of the households in GPOS, a figure that dropped slightly to 36% in 1990 and 2000 as the number households in the GPOS area grew while in POS it declined (Fig 5.13). This information, coupled with the declining population trend in POS discussed earlier, indicates pressure on surrounding areas to accommodate increasing population and households.

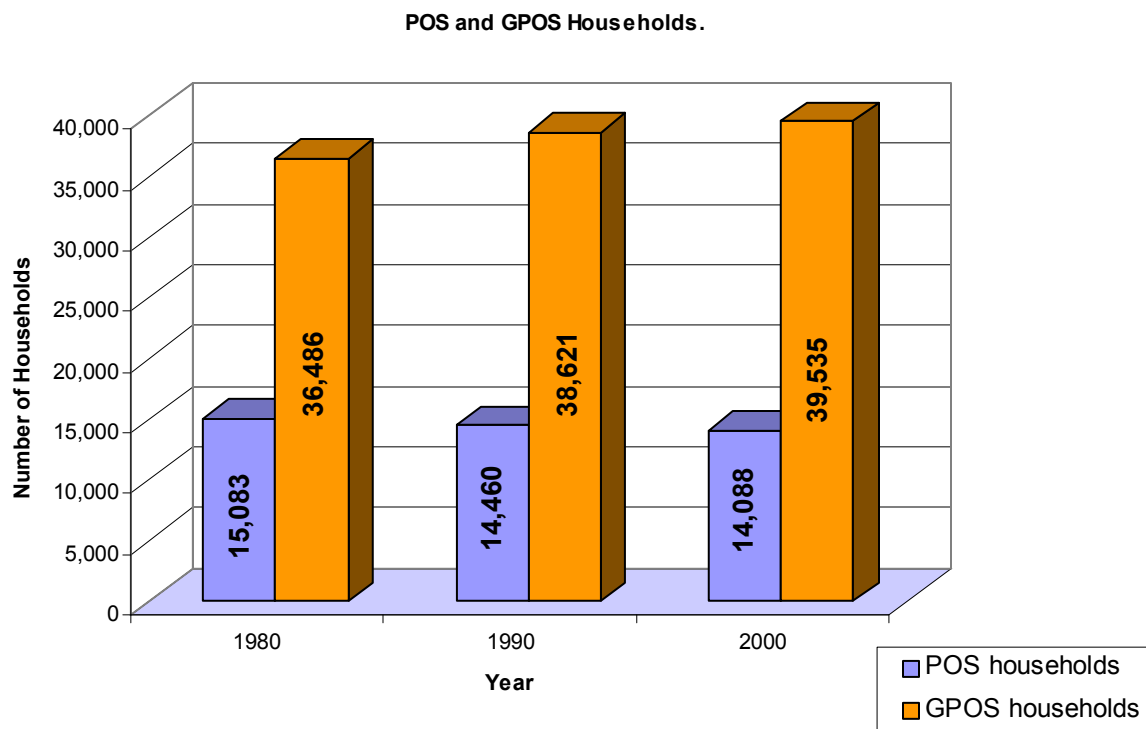


Figure 5.13: POS and GPOS households.

Source: CSO.

The ratio of households (occupied dwellings) to dwellings gives an indicator of the occupancy rate within the city. A ratio of 1 reflects full occupancy; anything less than 1 reflects vacancies within the city. One minus the occupancy rate equals the vacancy rate. The vacancy rate in POS since the 1970s remained somewhat stable at close to 4%. In 1980 the vacancy rate was actually 0 indicating full occupation of dwellings within POS (Fig 5.14). Thus there is little doubt as to the sizeable demand for housing in the area and there is no surprise that additional housing schemes are a large focus of current POS planning. Presently large-scale multi family housing schemes are being executed in Woodbrook, Cocorite, Maraval and Cascade.

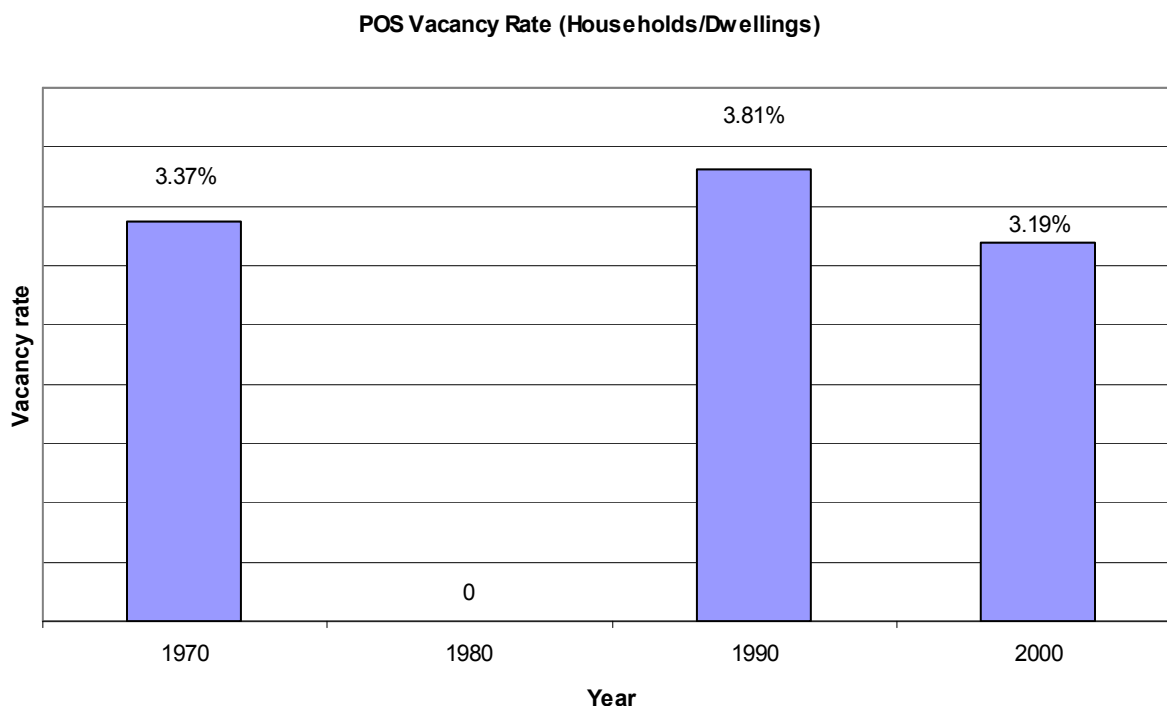


Figure 5.14: POS vacancy rate.

Source: CSO.

Affordability is a major issue in the development of housing in the POS area. Income in the study area is significantly below the national average because of areas of lower income housing in East POS, Belmont and Gonzales. The national median monthly income for Trinidad and Tobago is \$1400(TT). The median monthly income for POS is \$1260(TT), lower than the national number. Thirty-one percent of POS households have a monthly income of less than \$500 a month and only 7% of the households make over 6000 a month. Overall it is estimated that 42% of households had low incomes, 40% were middle income and 18% high income.

As such, according to the Greater POS Technical Report (Halcrow 2000) 40% of housing demand in the POS area is from low-income households (earning less than \$3632 TT per annum) with less than 20% from high income (earning more than \$8844 TT per annum). In fact, only 30% of POS households could afford a completed house while the rest required some kind of

housing subsidy. However, practically all current proposals for housing are for high cost units that are not affordable to a large portion of the national population, especially the POS population. This leaves limited choices for lower income households other than squatting, where self built housing on smaller plots with little infrastructure provide the only affordable and unsubsidized housing.

Agriculture Era

The agricultural period saw the beginning of the declining trend of households in the POS area. There was little change in households between 1946 and 1960 (-0.5%), but a larger drop between 1960 and 1970(-23%). During the 1960s all areas of POS saw a decline in households. POS proper lost the most, with a 36% household decline losing over 1000 households. East POS also lost over 1,000 households totaling 29% of its total. Cocorite only lost 127 people, which because of its small size made up 28% of the households in that region. St, James, Woodbrook, Belmont and Gonzales all lost between 10 and 20 % of their households. St Clair and Newtown lost the least- each area only lost 9 households each (Fig 5.15). As communication and transportation improved within the area there was a shift of the residential population into the suburban areas and during the 1960s development of residential neighborhoods to the west of the city drove this trend.

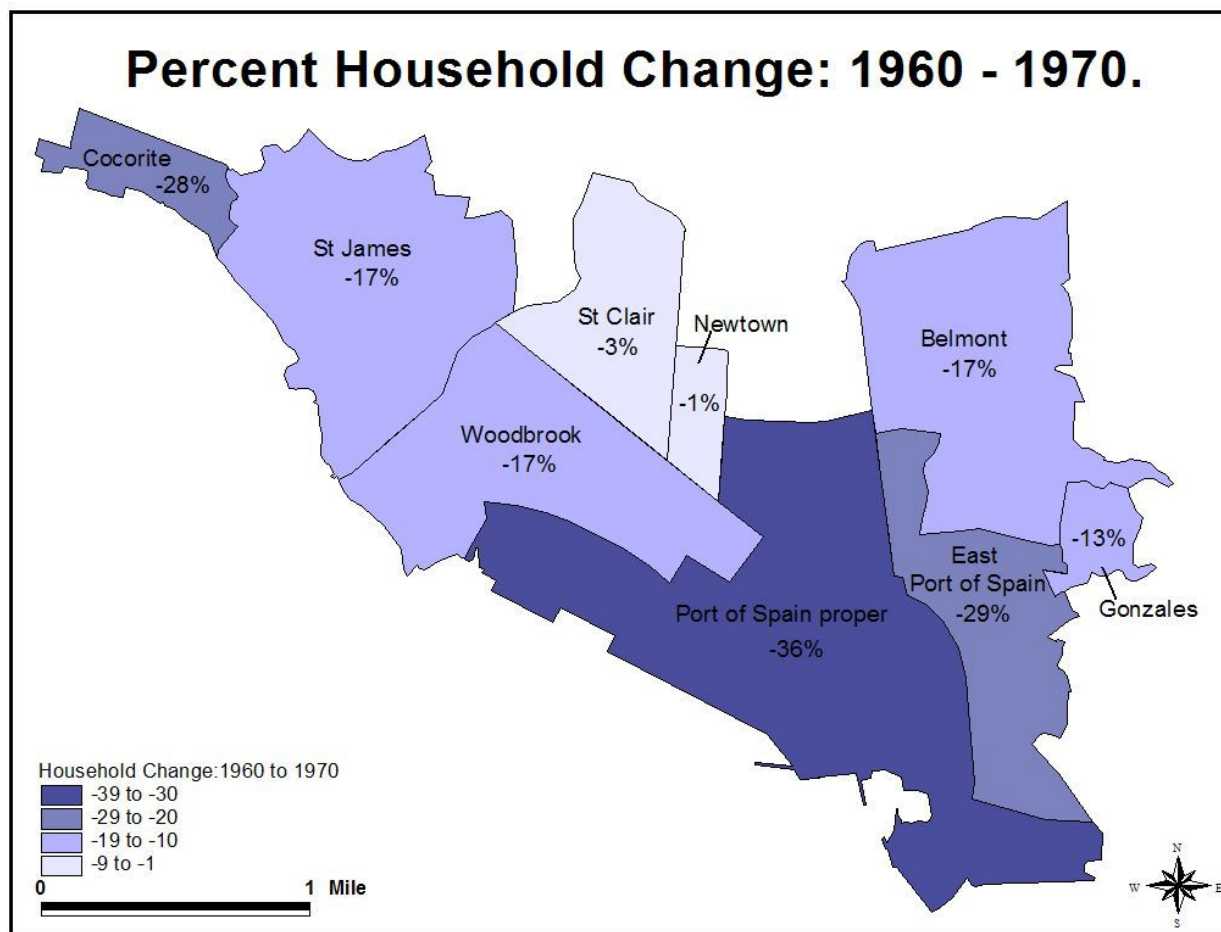


Figure 5.15: Household change by district: 1960 - 1970.

Source: CSO

Manufacture Era

In the manufacturing era, between 1970 and 1990, six of the POS areas continued to lose households, while three saw an increase of less than 25% (Fig 5.16). This household trend follows the population trend at the time, which steadily declined during this period, as well as the increase of multi-family housing and the decreasing average household size trends. POS proper lost the largest number of households (30% of its households), but this occurred during the decade between 1970 and 1980. During the period between 1980 and 1990 the area saw a

decrease of less than 1%, despite a population decrease of 17%, which can possibly be explained by the trend of smaller average household size.

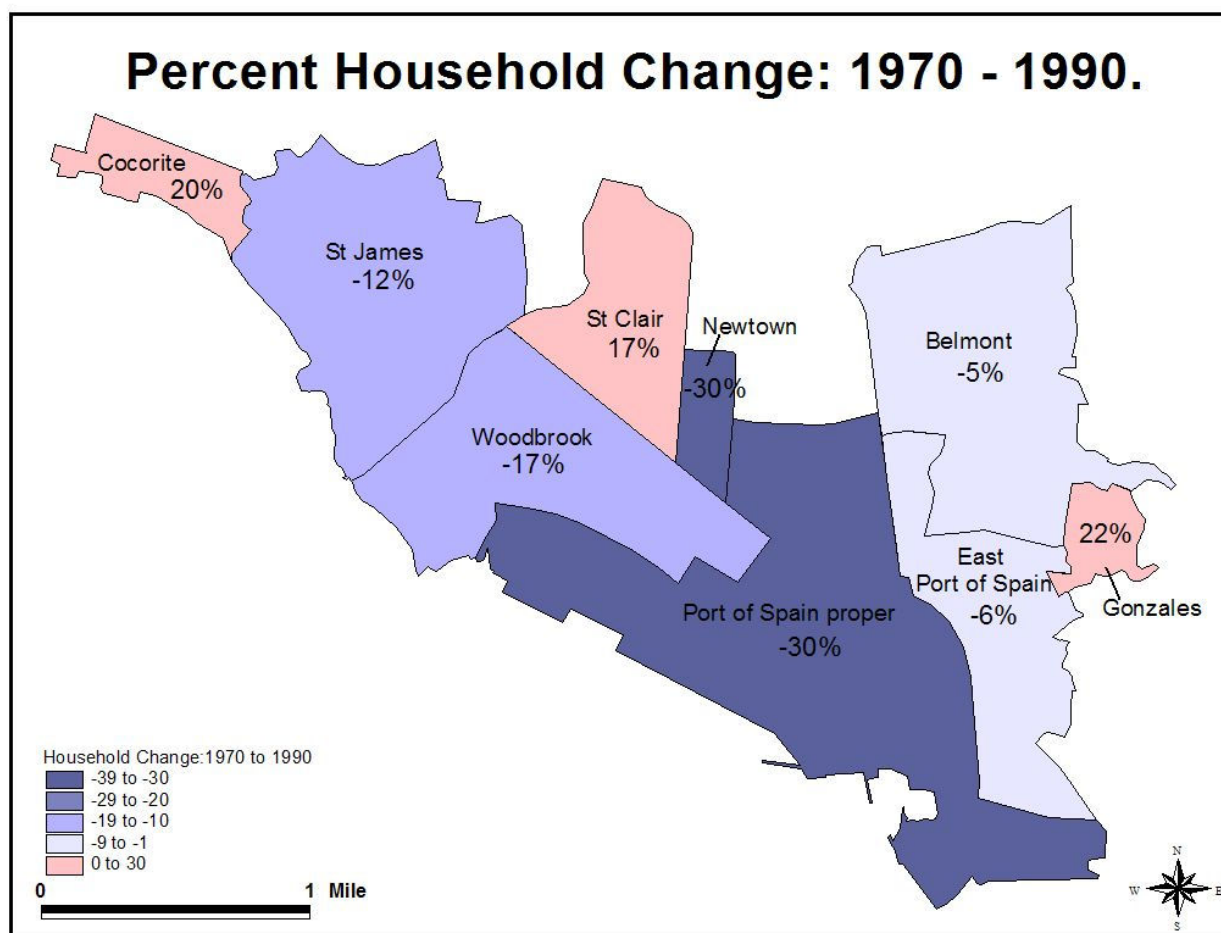


Figure 5.16: Household change by district: 1970 - 1990.

Source: CSO

Other areas that experienced a decrease in the number of households were Belmont, East POS, Newtown, St. James and Woodbrook. Despite increases in the number of 1970 households in Belmont and in the number of 1980 households in East POS, both areas saw greater losses overall during the period coinciding with decreasing populations in these areas. Newtown, Woodbrook and St. James consistently showed decreases in households through the 1970s and 1980s as commercial development continued in these traditionally residential areas.

Only three regions saw an overall increase in households between 1970 and 1990. St. Clair saw a decrease in households in the 1970s but a greater increase in the 1980s resulting in an overall increase of 17% in households in the area. Construction of multi-family housing in this area that was initially large lot single-family housing contributed to this trend. Gonzales experienced an increase in the 1970s and a small decrease in the 1980s but ended up with a 22% increase in households for this era. Cocorite followed the same trend, with an initial increase and following decrease, but overall a 20% increase in households during this era. Gonzales and Cocorite were also the only two areas of POS that experienced population growth between 1970 and 1980 and contain multi-family government supported housing.

Service Era

In the service era all areas of POS saw a decline in households except Cocorite, Gonzales and Belmont (Fig 5.17). St Clair, with the continued conversion to government buildings and commercial enterprises experienced the largest decrease (-22%) despite the 15% increase its population during the same period. This situation of increasing populations and decreasing households is also the case in Newtown, Port of Spain proper and East POS, seemingly negating the overall trend toward a smaller average household size.

Belmont, Gonzales and Cocorite saw increases in both household number and population. In these three areas more multi-family, formal and informal residences were created. St. James and Woodbrook experienced decreases in the number of households, which is not surprising considering that their population also dropped during this period. In fact these two areas were the only areas to lose population during this period.

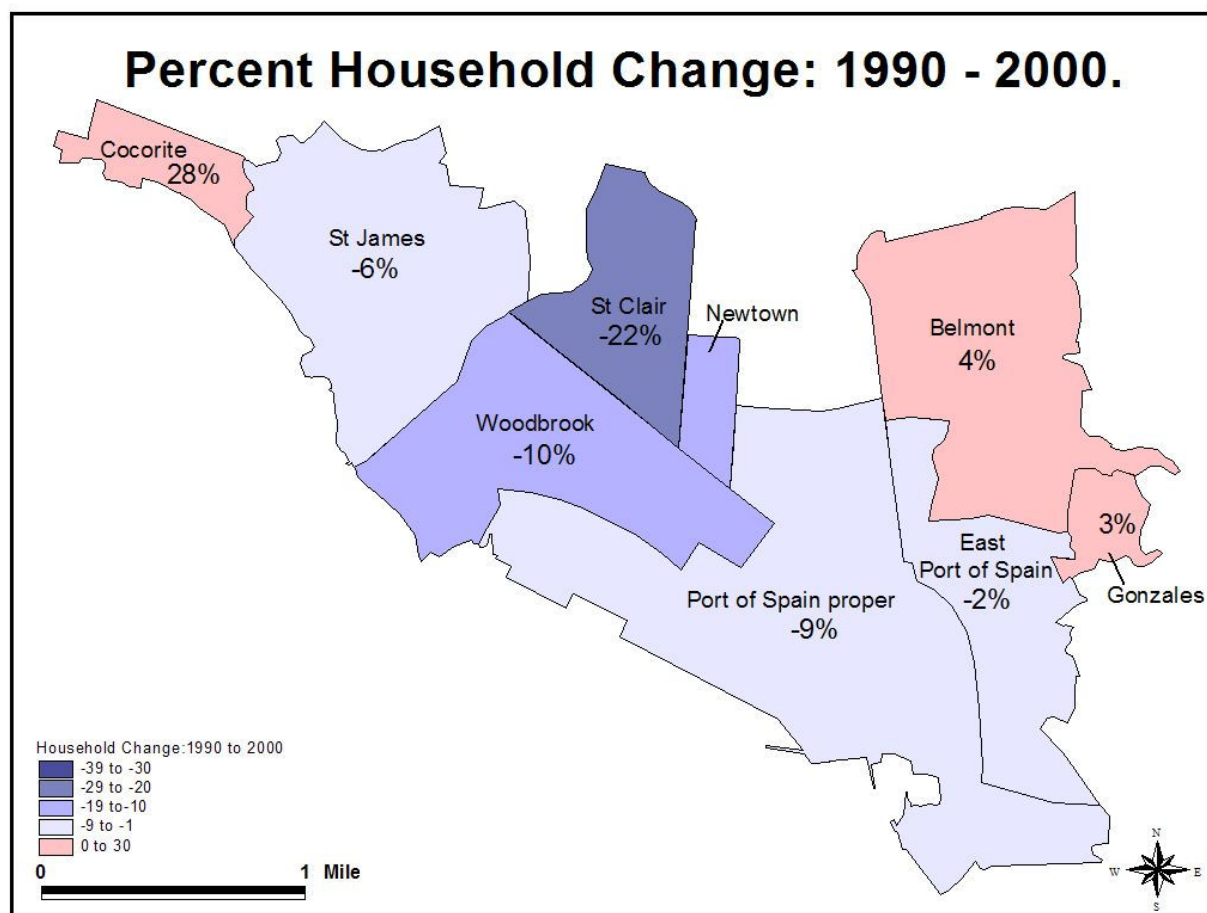


Figure 5.17: Household change by district: 1990 - 2000.

Source: CSO

Overview

All but two of the regions of POS lost households over the period of 1960-2000. This supports the data indicating the decreasing population trends of the area discussed previously. While there is some variation over the decades, as multi-family housing was added and commercial conversion of residential areas continues, there is an overall trend toward decreasing households in Port of Spain. The twin decreases of population and household prove to be the case in all areas except Gonzales and Cocorite. These two areas have experienced an

increase in households despite a decrease in population indicating smaller average household sizes or perhaps a higher vacancy rate.

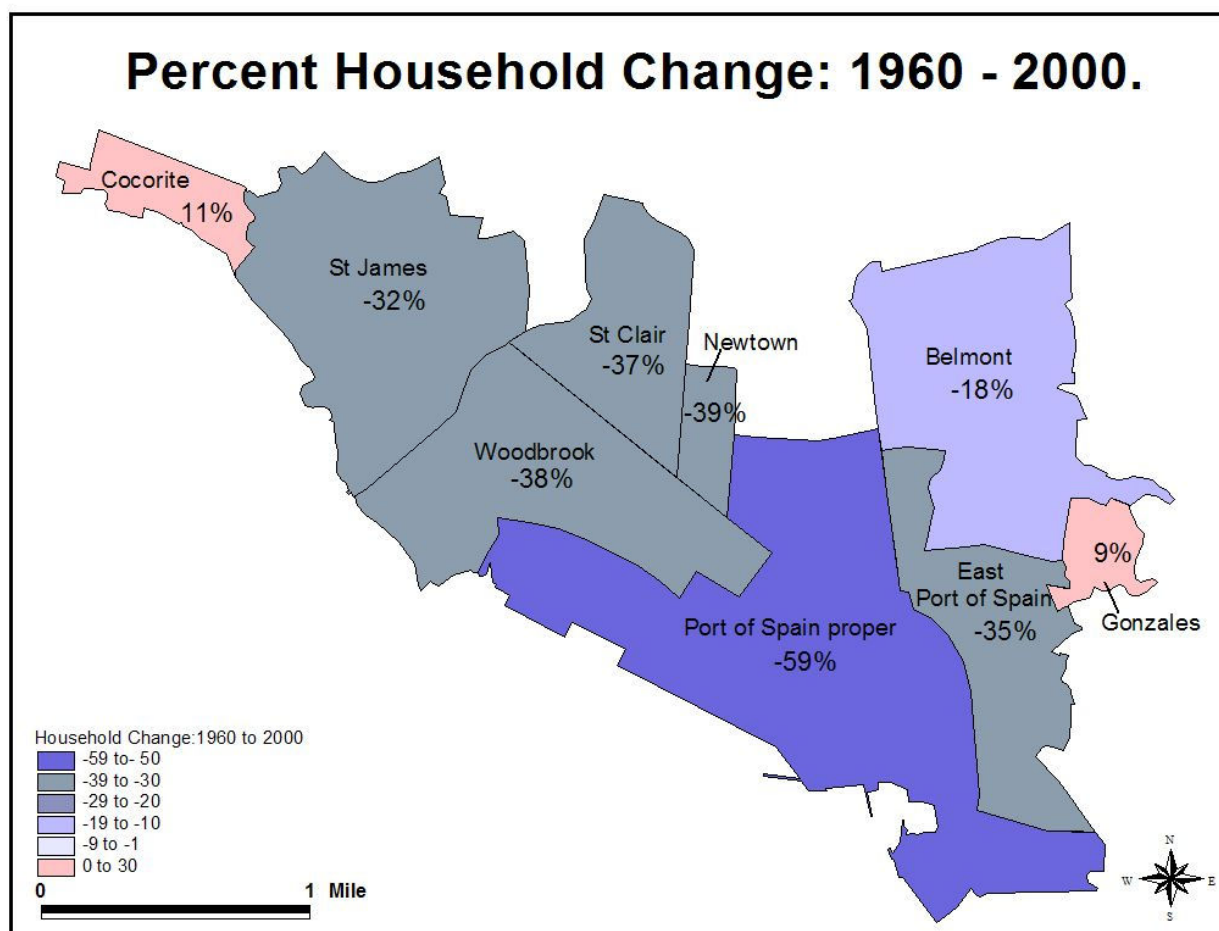


Figure 5.18: Household change by district: 1960 - 2000.

Source: CSO

As with the population statistics, the POS proper region lost the most households with over 20% more lost in that area than in others (Fig 5.18). St. James, Woodbrook, St. Clair, Newtown and East POS all lost close to the same percentage of their households, an average of 36%. St. James, Woodbrook and St. Clair contain middle to upper income residences, which are facing continued conversion to commercial properties. This is also the case for the lower income areas of East POS and Belmont. Households in POS can only be increased through the

densification of existing areas (such as Woodbrook and St. James), new housing built on vacant or unused areas and the redevelopment and subdivision of existing premises and increasing occupation of hillsides. Issues exist however as the current residential areas of Woodbrook and St. James are currently facing conversion to commercial and development on the hillsides can lead to environmental issues.

5.2.4 Employment and Transportation

Port of Spain is the commercial, financial and service center of the country and this is reflected in the employment available within the city. POS contains a higher proportion of trade, transport, finance, government and service industry employment than the nation as a whole (Fig 5.19). In 1997 POS contained 89,200 jobs, 20% of the national total. In 2000 POS contained 110,000 jobs, 25% of the national total while containing less than 4% of the national population and a possible 8% of the national labor force.

No actual numbers were available for the proportion of the labor force that resides in POS. In 2000 the national labor force was 45% of the national population. Using this percentage as a guide, a rough estimate of the POS labor force was found by finding 45% of the POS population. This number is probably an underestimation. Thus the labor force of POS is estimated as 21,315 people. This means that there are 88,685 people commuting into POS daily from surrounding areas.

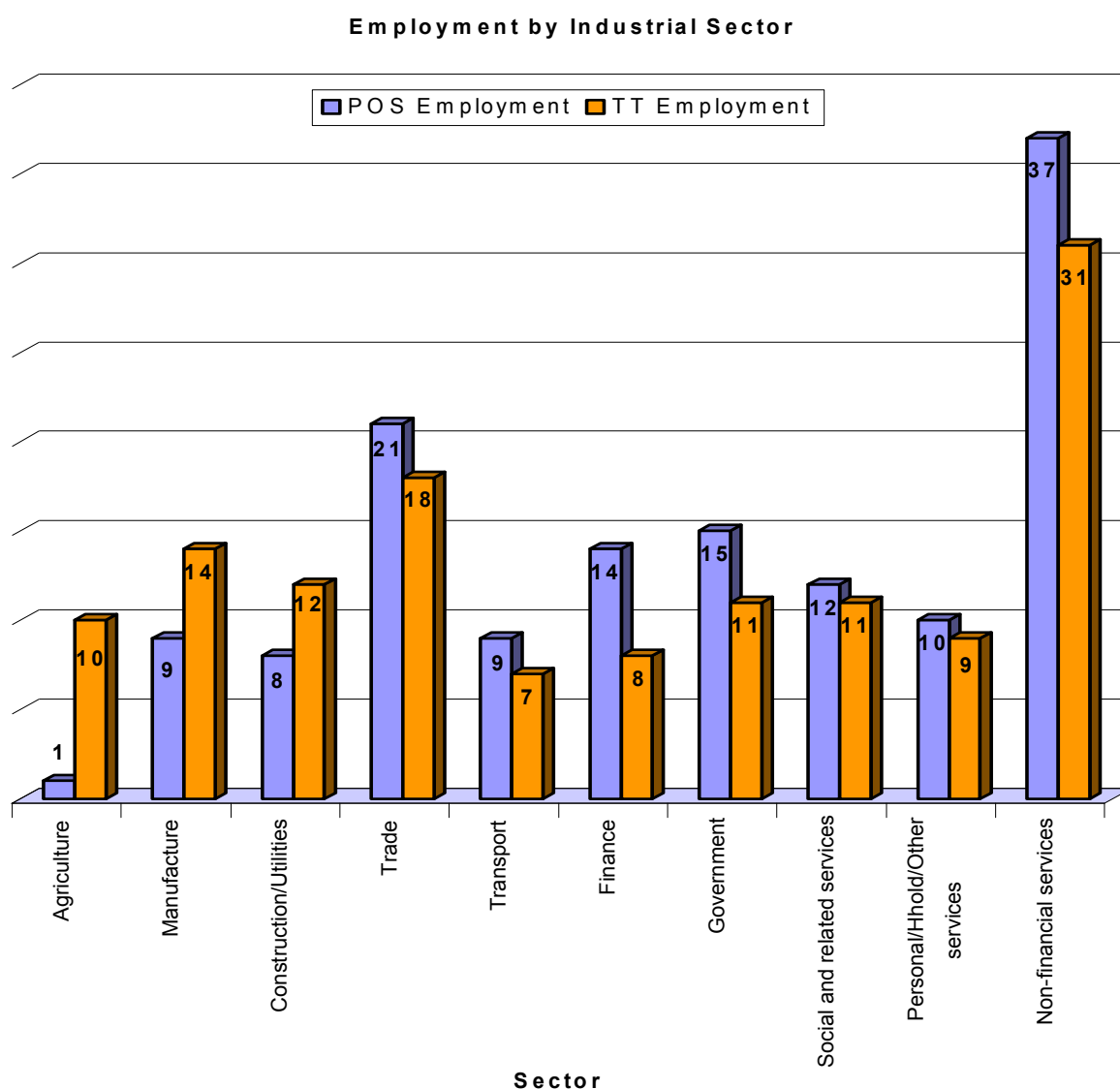


Figure 5.19: Employment by industrial sector: 2000.

Source: CSO

Place of work plays an even more important role in this study than the employment structure of the resident population due to the importance of commuting, but available information is limited on this subject. The distribution of employment in POS can be discerned to an extent through the distribution of business places and institutions. POS does not contain many large one-business buildings and while this is not an exact number it does give an idea of

the distribution of employment within the city. POS proper contains the largest number of businesses and institutions with 44% located in this area (Fig 5.20). As such most commuter traffic goes into the city proper.

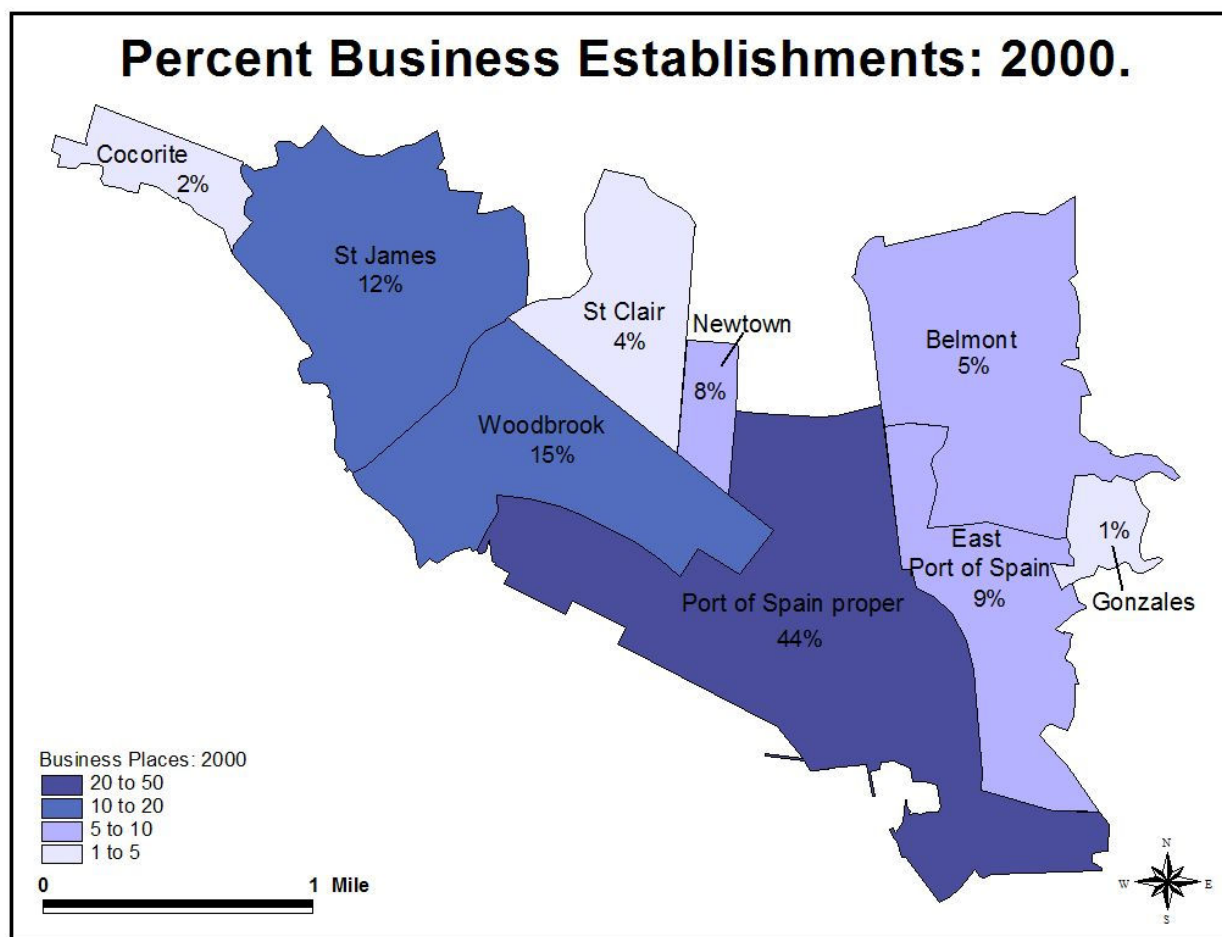


Figure 5.20: Business establishment distribution: 2000.

Source: CSO

According to growth estimates POS would need to have an increase of 39,000 jobs over the next 20 years in order to retain its share of the national job total. Considering the limits of land and the decreasing trend in housing stock this could mean an addition inflow of 33,000 journey to work movements into the city. This estimate, coupled with the increase in private motor vehicle ownership are indicative of the factors that contribute to the increasing pressure on traffic routes and the congestion and increased pollution associated with this.

5.3 Land use

The population, migration, housing, employment, transportation, political boundary and business distribution variables are all indicative of how the city evolved in its character and structure. Each of these variables influenced and was influenced by the distribution of the land use within the city.

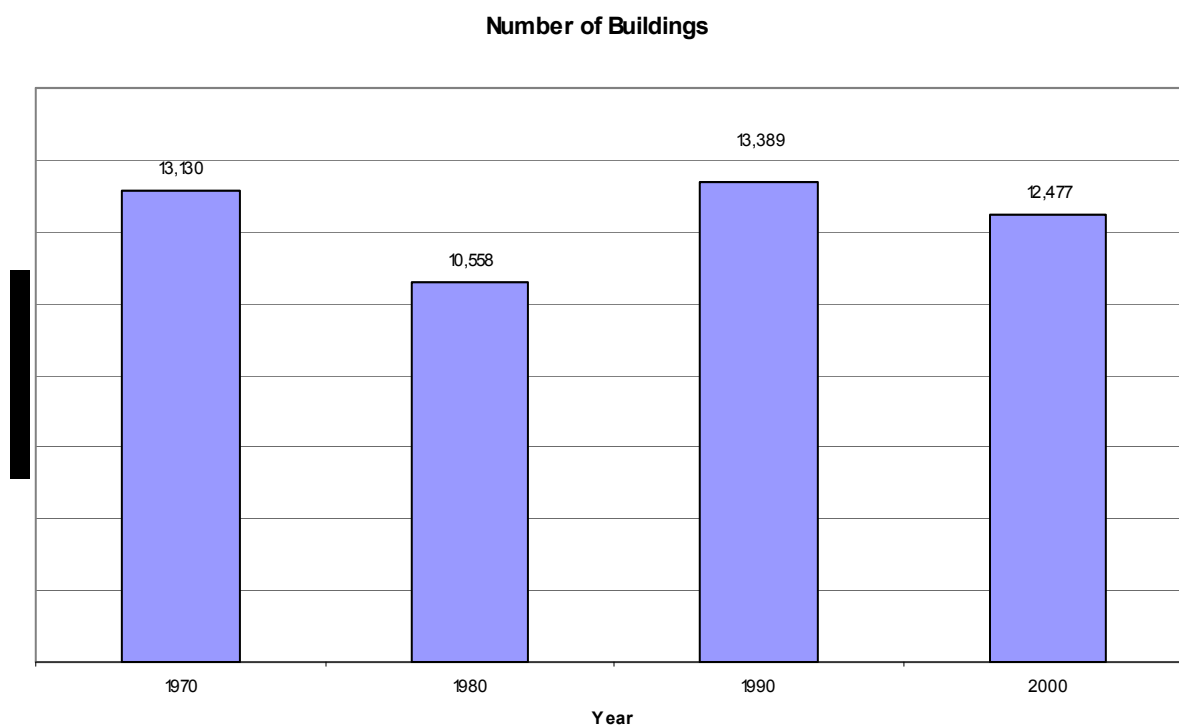


Figure 5.21: Buildings in POS: 1970 - 2000.

Source: CSO

The total number of buildings in POS varied over the years showing a decrease between 1970 and 1980, an increase between 1980 and 1990 and a decrease from 1990 to 2000 (Fig 5.21). The decrease between 1990 and 2000 could be because of construction and the replacement of smaller buildings with fewer higher-rise, larger ones. In contrast, there was a steady overall increase in the number of businesses in the POS area. No data is available prior to 1970 and for 1980 but from 1970 to 2000 the number of businesses in POS increased by 83% (Fig 5.22). In

the manufacturing period, between 1970 and 1990, the number of businesses in POS rose 57%. In the service period the number of businesses rose by 16%. The number of dwelling units in POS area steadily decreased. No data is available for 1960 but from 1970 to 2000 the number of businesses in POS decreased by 14% (Fig 5.23).

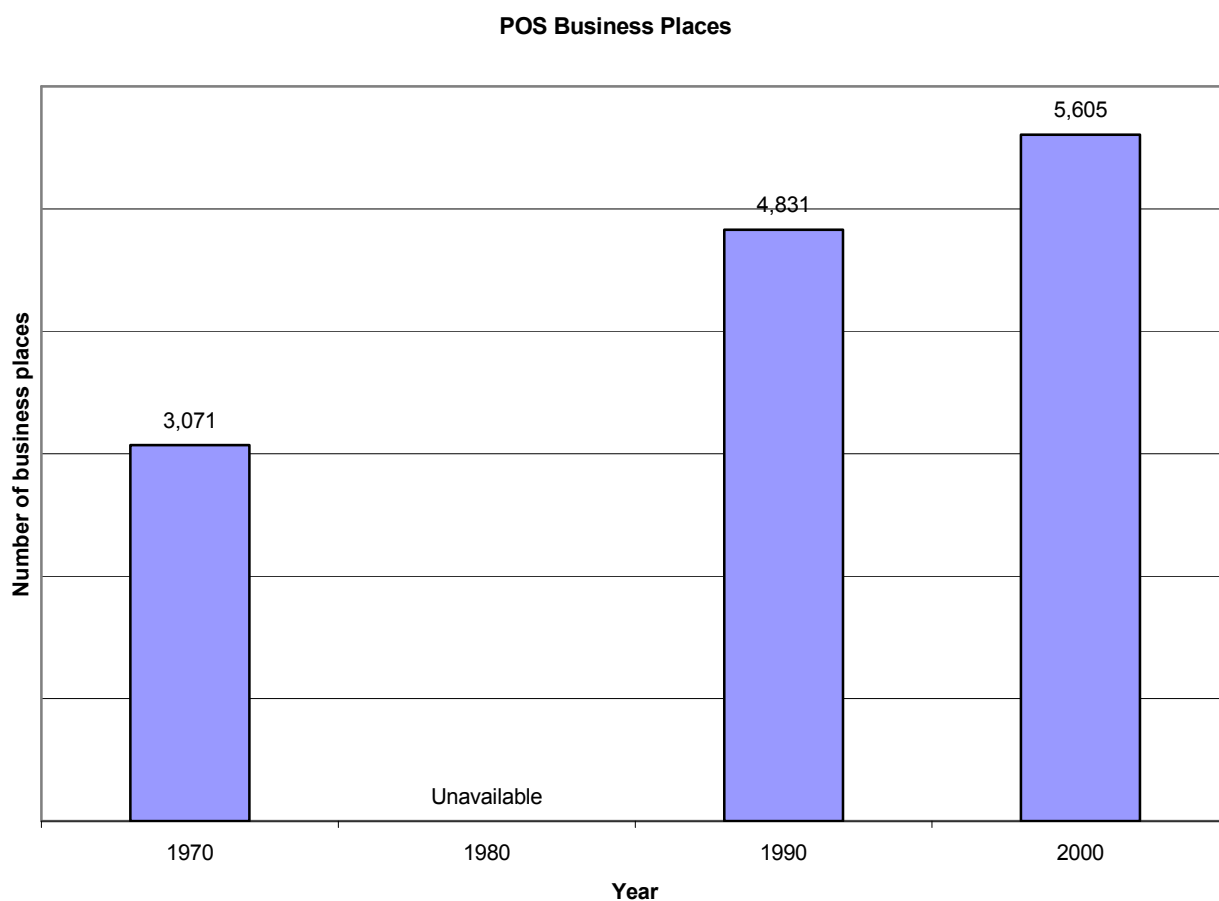


Figure 5.22: Business Places in POS: 1970 - 2000.

Source: CSO 2000.

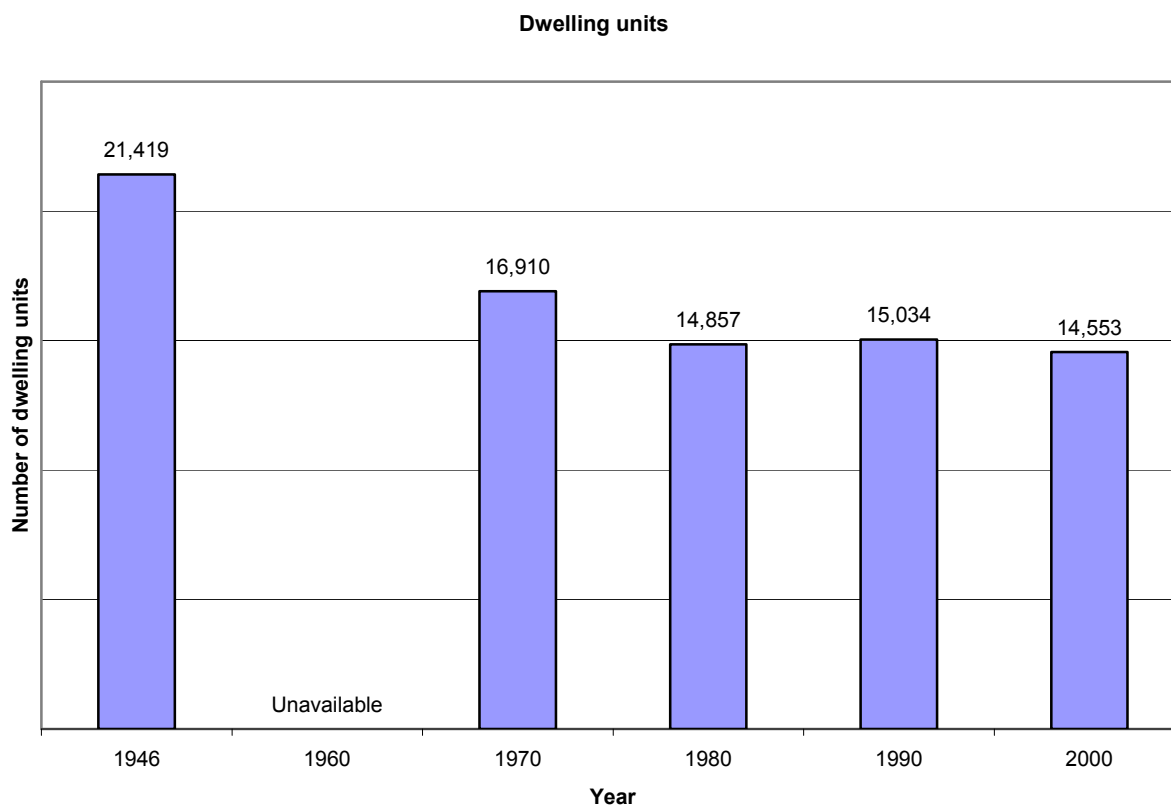


Figure 5.23: Dwelling units in POS: 1946 - 2000.

Source: CSO 2000.

Agriculture Era

The period from World War II to 1970 saw practically no change in the land use of Port of Spain. Most areas in the city were established since the early 1900s and were still being used for their initial purpose until the 1970s. Outside the city the agricultural sector relied on large farms and small subsistence plots. The existence of a large urban center was not necessary for the agricultural sector to flourish and Port of Spain functioned mostly as a transport node for sending the agricultural produce out of the country. As such the port area continued to develop with the reclamation of land and modernization of port facilities.

Manufacture Era

Even though the city's population and housing stock grew in some areas from 1970 to 1990, it also began to migrate outward into the residential areas ringing the city and into the "Petro-poles" (U.S. Department of the Army 2003) that developed near to the industrial compounds to provide closer access for the labor market of these sites. The decrease in dwelling units and issues of affordability during the 1980s led to communities of squatters increasing on the fringe of the Port of Spain area. Located mostly on undeveloped space on the hillsides surrounding the cities these unauthorized developments put additional strain on the city's infrastructure (Fig 5.24).

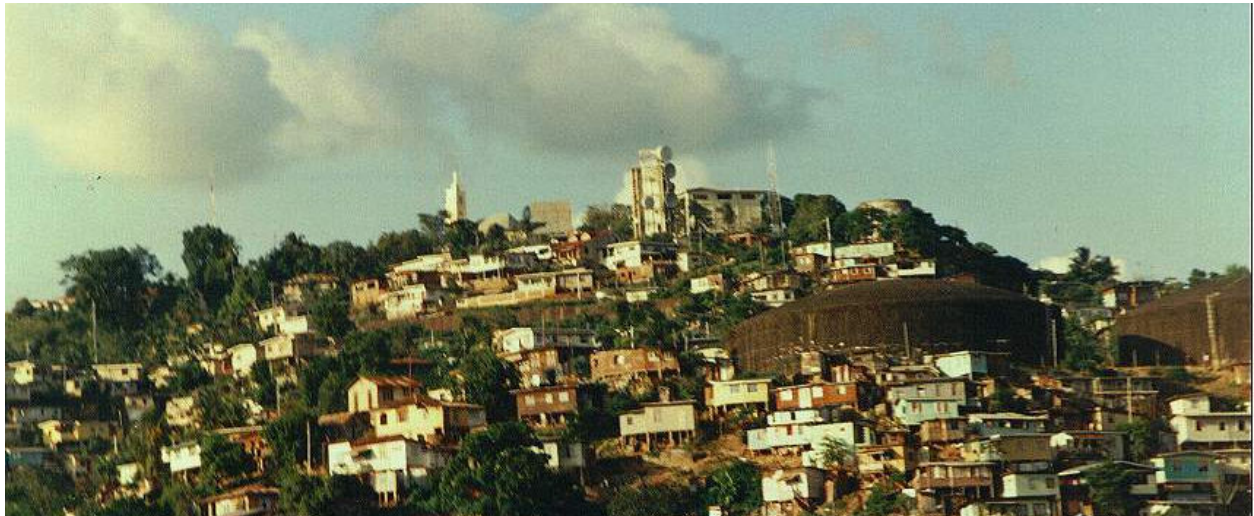


Figure 5.24: Unplanned hillside development in Laventille.

Source: Express 2004.

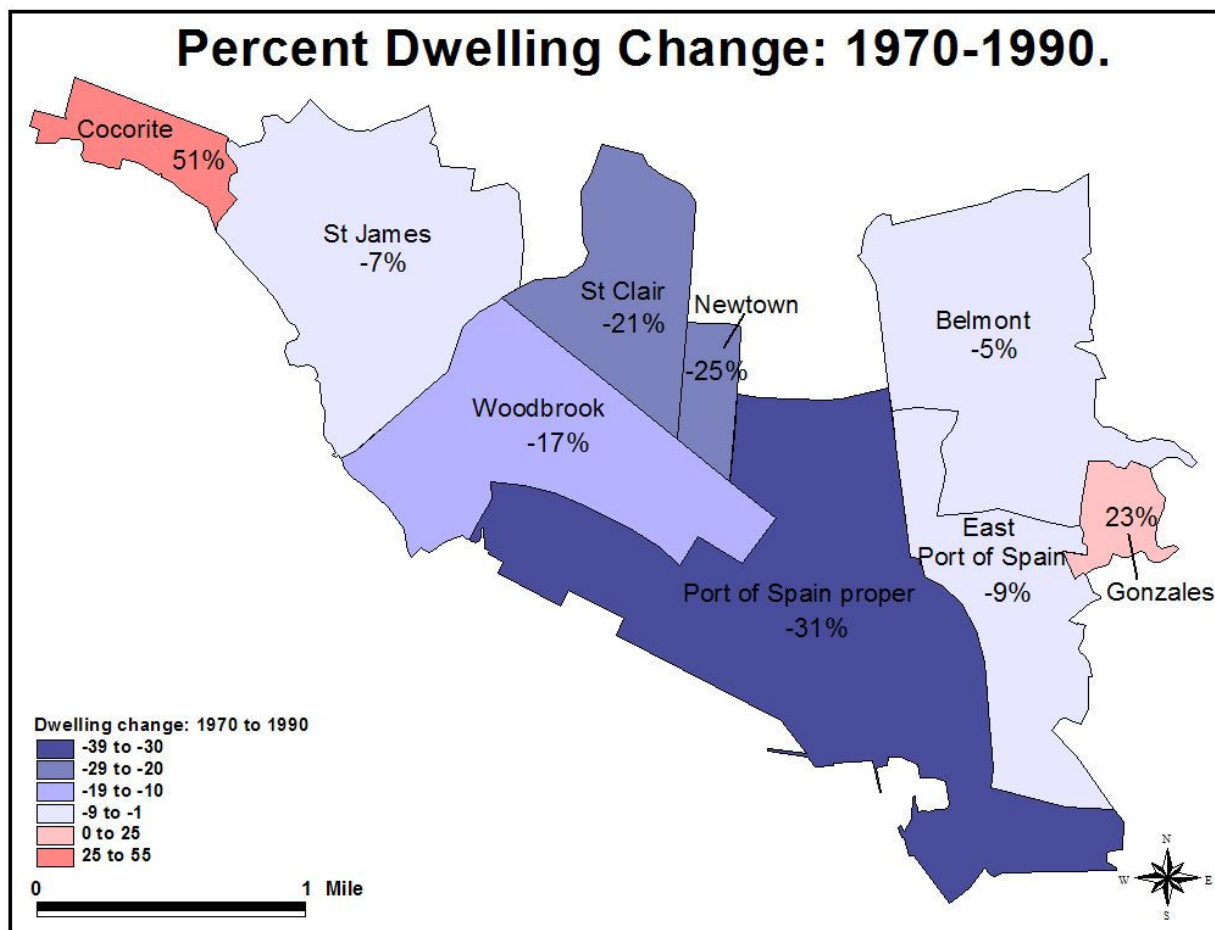


Figure 5.25: Dwelling change by district: 1970 - 1990.

Source: CSO 2005.

Between 1970 and 1990 the number of dwellings in POS decreased in all areas except Cocorite and Gonzales (Fig 5.25). POS proper saw the greatest decrease in dwelling units (31%). This is no surprise since that area is the CBD and involves more emphasis on commercial, entertainment and government buildings. Only Cocorite and Gonzales saw an increase in dwellings, areas where more informal housing and multi-family housing was constructed.

Another characteristic of land use change in this era was the continued commercialization of residential areas like Woodbrook. Many of these areas – traditionally residential - were limited to neighborhood commercial activity such as small stores along the area's main

transportation artery. However this period saw a boom of business where residential buildings were converted to commercial sites. In most cases these were not new constructions but rather the repurposing of older buildings. Thus the aesthetic of these areas was not greatly affected by these changes.

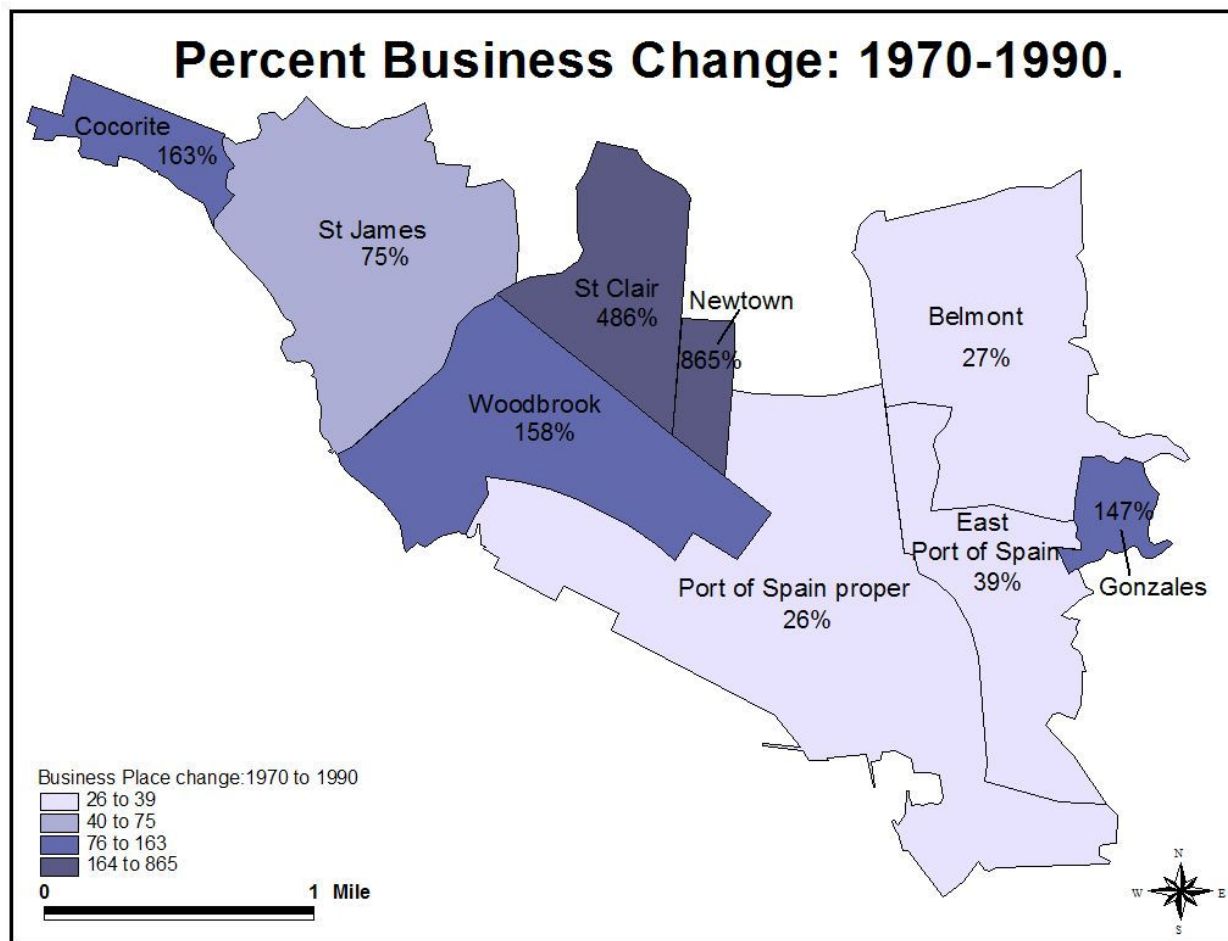


Figure 5.26: Business place change by district: 1970 - 1990.

Source: CSO

In the manufacturing period between 1970 and 1990 the number of businesses places in POS rose 57% (Fig 5.26). All POS regions had an increase in the number of business places. Notably, residential areas such as St. James, St. Clair, Woodbrook and Cocorite saw an increase

of over 75% in the number of businesses in this area. Conversely, areas within the CDB (POS proper) saw a much smaller increase in businesses. These areas were traditionally centers for business and so already contained a large number of businesses.

Construction was an important factor in the manufacturing period, especially after the oil boom of the early 1980s. During this period POS saw the construction of mid-rise and its first main high-rise buildings. The Tatil building, a twelve-story office building located in Newtown, was constructed in 1974 (Fig. 5.27). The twin towers of the Eric Williams Plaza in POS proper were completed in 1986 and became Trinidad's tallest buildings, each 22 stories high (Fig 5.27).



Figure 5.27: The Tatil building (left) and the Eric Williams Plaza (right).

Source: Trinidad Guardian 2005.

Limitations to development in POS occurred because of the vast number of low-rise buildings, limited available land for new buildings, underused buildings and the high cost of land. Cocorite, Woodbrook, St. Clair and Gonzales more than doubled their number of business places reflecting the patterns seen in the discussion on households and population, a decrease in

the residential population in these areas while businesses move out of the downtown area to outer areas where access is easier and space more available.

Service Era

The Service era saw continuing pressure for commercial use of the limited land available in the Port of Spain area in order to utilize it at its highest and best use. As such, land use policy changed in order to accommodate a greater degree of commercial development. Even though the city's population grew in some areas, other areas began to show changes in land use and eventual decay. The CBD area continued to lose its permanent residential base. The decline in resident population coupled with the presence of some large vacant and derelict sites gave parts of the city center a run-down and neglected feel (Fig.5.28).



Figure 5.28: Vacant sites in POS.

Source: Waldron 2005.

The service period saw a decrease in dwelling units in all areas except Belmont, Gonzales and Cocorite (Fig 5.29). Belmont and Gonzales however saw very slight increase of less than 3%. Cocorite saw the largest increase. The number of dwelling units in Cocorite increased by

42% due to the increase in multi-family housing in that area. The trend in dwelling distribution and changes followed the trends for households discussed previously. The total loss of dwellings in POS was 3% for this period and for households it was 2.5%.

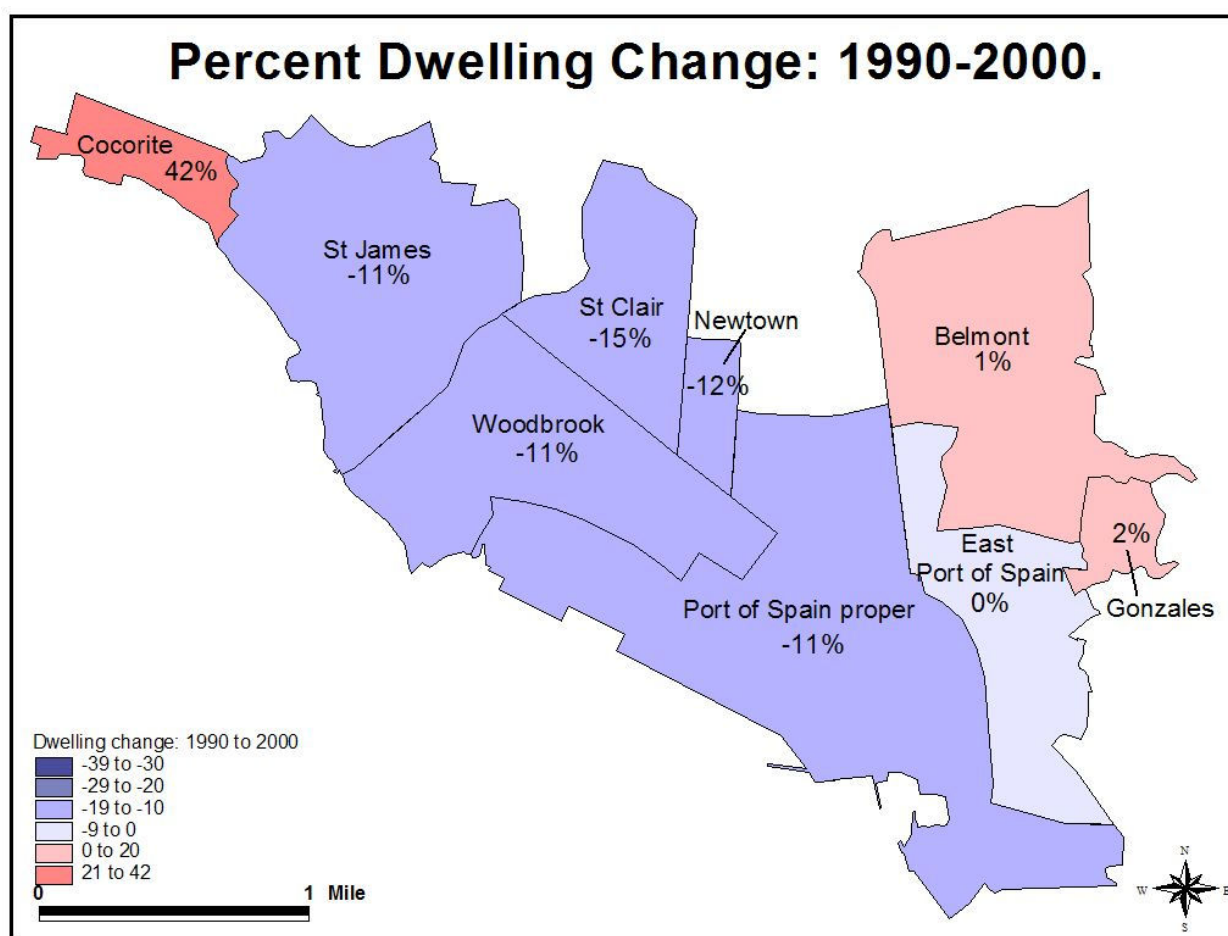


Figure 5.29: Dwelling change by district: 1990 – 2000.

Source: CSO 2000.

In East POS during this period there was no change. All other POS areas saw the declining trend continue with loss of dwelling of over 10% in each area. These changes occurred in all areas but not as much of a change as in the period between 1970-1990 discussed previously. The densification of housing in the existing residential areas is one policy that

government and developers are pursuing. The developments however are being produced for high-income housing and thus the displacement of the middle-income residents of areas such as Woodbrook continues. Destruction of historical buildings and relocation of cultural landmarks is also a concern in these development plans.

One example of the new housing schemes is One Woodbrook Place. One Woodbrook Place, an \$850 million (TT) dollar project, is currently in construction on an eleven-acre site (Fig. 5.30) between Woodbrook and St. James (Briggs 2004). The original residents of the area included the pan yards of Starlift and PhaseII steel bands. PhaseII is an institution in the Woodbrook area and the pan yards are traditionally a main gathering place for POS residents.

Home Construction Limited (HCL), the owner of this development, advertised the venture as providing the “best Port of Spain has to offer from the vibrant creativity and festivity of the Carnival season” (HCL, 2005) – an interesting statement considering that the development forced the relocation of the pan yards which are an integral part of Trinbagonian and Carnival culture. Two samaan trees that stood on the property for many decades have also been taken down.

The project, set to finish in 2007, will include 3 residential towers, an elevated village street with townhouses, a shopping area, underground parking and an entertainment complex. Home Construction Limited (HCL) touts the project as unlike any development the POS area has seen with 421 luxury apartments (Briggs 2004). Studio apartments are priced at \$600,000; a three-bedroom apartment at \$2.8 million and a penthouse is estimated at 3.5 million. Yet despite these high prices there is great demand and over 2000 applicants for the 420 dwellings that the complex will house, reflecting the state of the real estate market and the high demand for housing in the POS area.

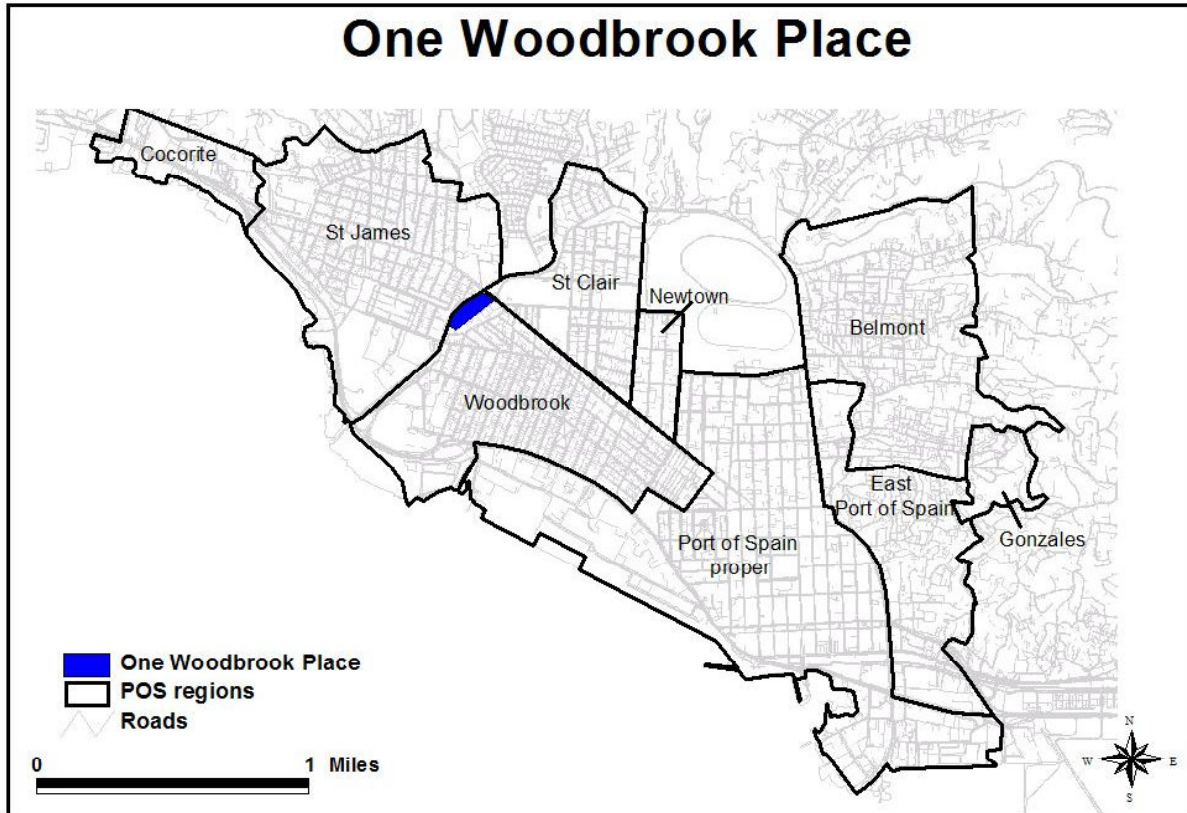


Figure 5.30: One Woodbrook Place.

Source: HCL

“The apartments are aimed at the starter market, young professionals like doctors, lawyers,” said Anthony Fifi, HCL’s managing director. “A 600 square foot with one bedroom and bath is a suite like in the Four Seasons”(Briggs 2004, 2). While POS does need to increase its housing stock the example of One Woodbrook Place is indicative of the majority of development schemes for the city. It does not cater to the existing residents of the areas of St. James and Woodbrook, but instead offers high-income housing in what Mr. Fifi terms a new concept in urban living. This concept also drastically changes the landscape of the Woodbrook and St. James areas with high-rise structures in a traditionally low-rise, single story areas as evident in Figures 5.31 and 5.32 below.



Figure 5.31: Traditional Woodbrook home, circa 1890.

Source: Waldron 2005.



Figure 5.32: Artist impression of One Woodbrook Place.

Source: HCL 2005.

The conversion of historical residences into commercial sites is somewhat beneficial in the sense of repurposing these individual character buildings and allowing commercial areas to

grow without much disruption to their visual value. There are many examples within the city where this occurred (Fig. 5.33). However there also exist many examples within the city of "gap sites" where several buildings were removed to provide parking facilities for this new commercial base (Halcrow Group Ltd 2000).



Figure 5.33: The house located at 17 Duke Street, built in the 1780s, now functions as a commercial site.

Source: Waldron 2005.

In Port of Spain today there is a high demand for commercial and retail development. In the period between 1990-2000 business places in all areas increased except Newtown (Fig 5.34). In fact the number of businesses places in POS rose by 16% between 1990 and 2000. There is also a demand for residential development, which is hampered by the competition of rising land

values and a finite amount of land in the city as it is surrounded by the mountains of Trinidad's northern range. The area contains most of the country's high and medium rise buildings and this development extends from the downtown area to the surrounding residential areas displacing residents.

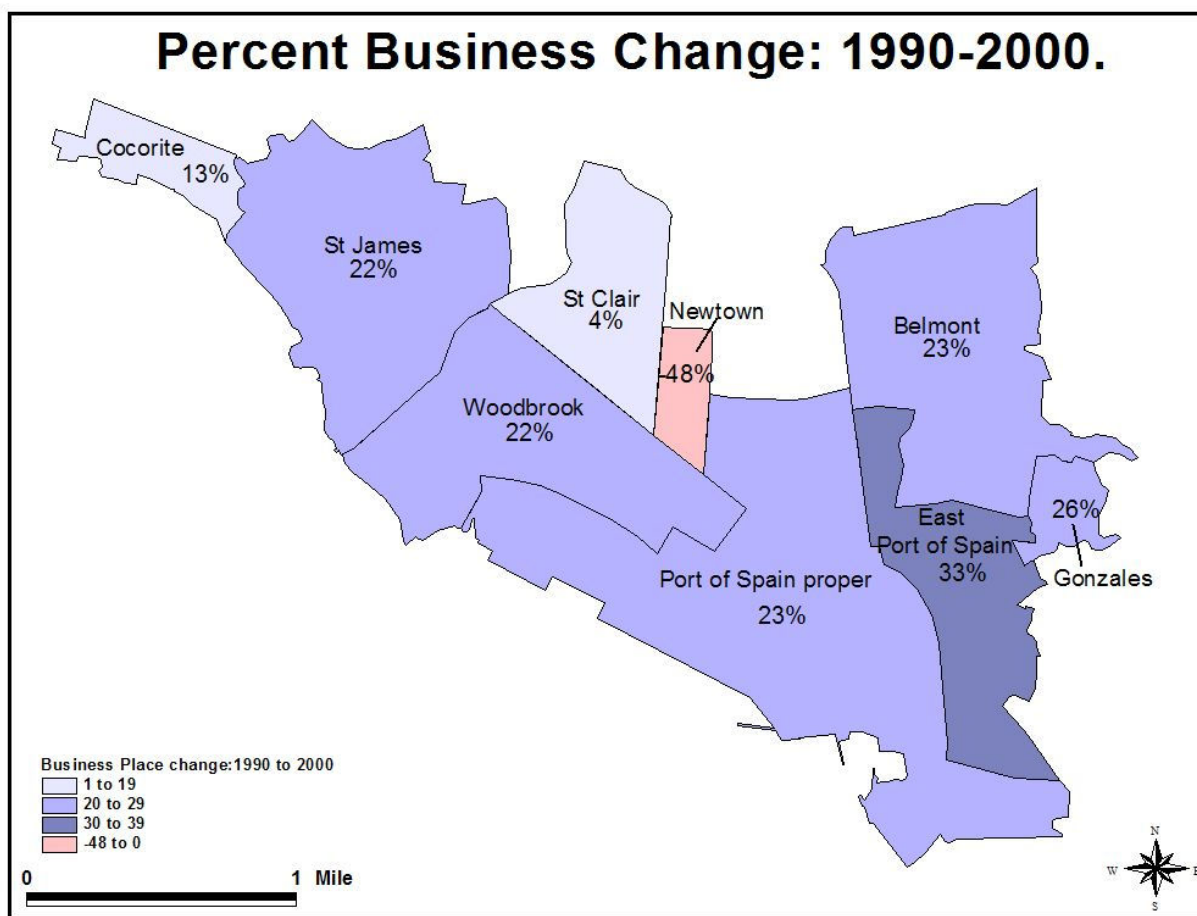


Figure 5.34: Business place change: 1990 - 2000.

Source: CSO 2000.

The spread of commercial development to previously residential areas like Woodbrook, St. James, St. Clair and Newtown constitutes another aspect of land use change within POS. These traditionally middle income residential areas currently exhibit a more complex pattern of land use characterized by commercial development with citywide services. Woodbrook and St.

James experienced an over 20% increase in business places from 1990 to 2000. The commercial changes in these areas however have not occurred completely and some retain their residential base. They do, however, face the issue of continuing commercialization and the resulting out-migration of population to more suburban areas of the city.

In 2005, the Woodbrook Resident's Committee (WRC) brought the issue to the forefront by discussing the skyrocketing real estate prices of the last decade and the repercussions of the increased commercial activity in this previously predominately residential area (Browne 2005). Woodbrook. There are many residents of Woodbrook, most elderly, who despite the fact that their properties currently sell for over one million TT dollars, have no intention of leaving the area. At a meeting with the Town and County Planning Division, residents of Woodbrook, along with residents of Newtown, St. James and St. Clair, complained that they were pressured and threatened by real estate agents as well as business owners to sell their properties.

Port of Spain's mayor, Murchison Brown, agreed that the relationship between residential and commercial activities in POS must be urgently addressed as the city continues to lose its residential population as a result of the commercial activity that is penetrating residential areas (Browne 2005). Policy guidelines for commercial locations have been outlined for these residential areas but the WRC and Mayor Brown share the concern that these guidelines are not being enforced.

The residential areas face many issues including increases in traffic congestion and illegal parking, increased illegal street vending, vagrancy, prostitution and drugs. The businesses that are locating also bring in unfavorable conditions in the type of business (casinos and massage parlors) and any waste from commercial activity. Houses converted to commercial activities may

often house hazardous materials and the increase in restaurants in these areas also spurred unsanitary conditions and an increase in rats and roaches.

Real estate prices, an important factor in land use, also rose at a high rate in Trinidad and POS since 2000. Local real estate associations estimate that a property that is well maintained should appreciate at between 5% and 10% annually (Casear 2005). In Trinidad property prices increased by nearly 60% between 2003 and 2004 because of increased production costs, increased housing demand and increased speculated in real estate as an investment

Construction in the service period continued the trends started in the Manufacturing era with more high-rise buildings being built, the majority in Port of Spain. The Nicolas Tower, a 24 tower buildings, was erected in POS proper in 2003 and currently there are six high-rise buildings planned for that area. Whatever changes occurred in POS during the past eras, it is the last five years of the current service era and the future plans that will change the landscape of POS most drastically. Many of the plans currently being approved and currently in construction have been in development since the 1990s when the economy began to grow in this sector. In 2003, the current PNM government outlined plans for a “revived rebuilt Port of Spain” to be executed during a four year period – 2003 to 2007 (Loutoo 2003). These plans include the creation of a Government campus site, a new harbor complex and additional businesses in POS. These changes, says Port-of-Spain mayor Murchison Brown, are “keeping with government’s plan for a developed country by 2020... to bring city inline with some of the metropolitan cities in the world” (Loutoo 2003, 2).

Reaction to the plan varied. Trevor Sudama, the Planning Minister under the previous (UNC) administration, cited the urban bias of the plan which focuses mainly on the POS area with no consideration of decentralizing government employment - part of the POS plan executed

during the UNC administration. Business owners in the area welcomed the development but worried about increased crime and traffic congestion, lack of parking and unclean streets. Residents of East POS questioned what the plan will mean for them and if adequate housing and business opportunities would be provided for people in the area. Residents of other surrounding residential areas, such as Woodbrook, St. James and Belmont also expressed concern about the increasing commercialization and congestion in these areas.

In June 2004, Government unveiled a three billion-dollar facelift plan that it claimed will improve and modernize Port of Spain, making it more user-friendly for its citizens and a better business and employment environment, inline with the national Vision2020 plan (Express 2004). This face-lift addresses the issues of access into and out of POS, parking facilities and security that is affecting employment and retail in the city and includes the redevelopment of the Port-of-Spain waterfront, the Government Campus Plaza on Richmond Street and several housing developments in the Laventille area.

Prime Minister Patrick Manning's administration claims, “the multi-billion-dollar facelift plan will provide a significant boost to the economy and provide additional employment in the city” (Express 2004, 1). The plan for the Government Campus Plaza includes a modern center to accommodate many government administration offices, a complex for the performing arts and new facilities for the Inland Revenue and national archives on one million square feet of government-owned property in the heart of Port of Spain at Richmond, Ajax and London Streets.

Figure 5.35 and 5.36 below show just how the “face-lift” will affect the landscape of downtown POS as it moves toward a more “modern” city. The plan mentioned changing the areas around Woodford Square, a historic area, in order to facilitate the “tranquil city centre” (Express 2004, 1). The plan also makes note of the importance of security, future orderly

expansion of the city and conservation of historic sites in the city, but does not give specific plans for such conservation.



Figure 5.35: Building in POS.

Source: Waldron 2004.

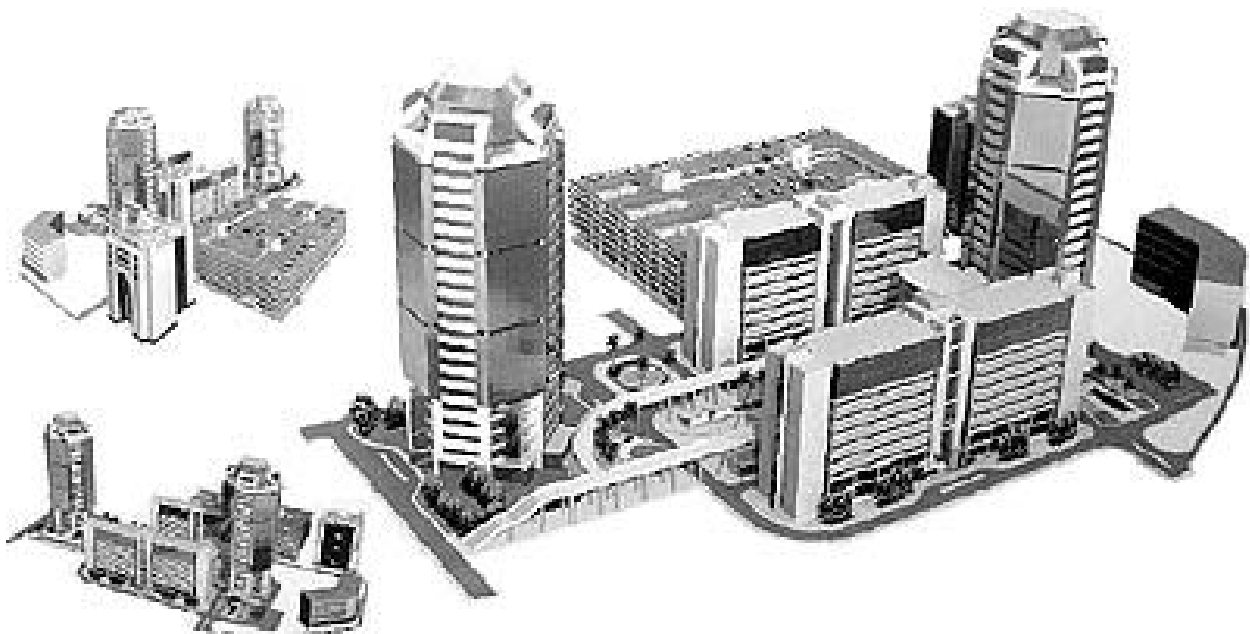


Figure 5.36: Artist Impression of the Government Campus Plaza

Source: HCL 2005.

The \$1.2 billion Port-of-Spain Waterfront Project, which began construction in early 2005, has been in development for at least six years and is rumored to include the headquarters of the Association of Caribbean States and the Free Trade Area of the Americas (Guardian 2004). Another large project that will change the face of POS is the Broadgate Project. Developed by Transcorp credit union, a co-operative society for employees of the Public Transport Service Corporation, the project includes a multi-use complex comprising a 15-storey office tower and 75 retail and entertainment outlets and will be located opposite POS's mass transit hub (Chouthi 2005). Like the Government Campus Plaza on Richmond Street, this project is large scale and will replace buildings on 95,000 square feet of prime property in Port-of-Spain (Fig. 5.37, 5.38 and 5.39 below).



Figure 5.37: The Broadway Area circa 1930.

Source: Trinidad Guardian online 2005.



Figure 5.38: Buildings currently in the Broadway Area- proposed site for the Broadgate Project.
Source: Business Express 2004.



Figure 5.39: The Broadgate Project
Source: Business Express 2004.

The development plans presented previously, as well as other current proposals, focus on making Port of Spain a city akin to those in developed countries. As such higher rise, higher density building for both commercial and residential use, increased parking and the rerouting of traffic patterns are proposed. Some however believe that these plans may not benefit the city in the long run. Colin Laird, chief architect of several national building projects including the Brian Lara Promenade and National Library projects, stresses that the city needs to return to pedestrianism rather than the trend toward big buildings seen presently (Loutoo 2003, 2). The local area draft plan presented in 2000 (Halcrow 2000) showed a gradual move to pedestrianism but present plans, under a different political administration, do not indicate this trend.

If present trends continue Port of Spain faces losing its virility, Laird claims (Loutoo 2003). Certainly the movement of people out of POS proper to Woodbrook and areas further out, as population and households decrease and businesses increase in what were previously residential catchments for the city seems to support this view. Mixed development, with residential, retail and office space occupying the same buildings, is needed to balance the spatial mismatch of housing and employment, increasing traffic congestion, increasing crime and the degradation of downtown buildings.

While plans continue to make POS a modern city there are concerns about how the existing city issues will be dealt with and the lack of development and enforcement in urban planning. A greater interest in planning is necessary in POS not only in order to preserve historic buildings and the character of the city but also to facilitate safe continued growth within the city (Homer 2005). The large informal economy that always existed in the city is still strong today with numerous street vendors selling a variety of goods. Government formalization of some parts of the informal economy occurred with projects like the People's Mall located on Frederick

Street, the retail center of POS. The People's Mall, started in 1980, involved the provision of an area of land located in the prime CBD district of POS for informal retail trade. While economically successful, issues have plagued the mall as the number of vendors increased. Initially seen as a temporary fix for problems caused by the numerous road vendors the mall vendors faced overcrowding, faulty electrical provision, substandard structures and no adhesion to safety codes (TTCC 2005).

In terms of planning, other than the initial formalizing of the area there was no planning and maintenance to deal with the growth of businesses in an area where there is no enforcement of building codes or accountability for deviance from them. As far back as 1993 the issues that resulted from no government monitoring of the growth and development of the area were evident ((Lloyd-Evans et al. 1993). In the case of the People's Mall a fire on 9 April 2005 ignited 25,000 square feet of property and destroyed over 100 small businesses because of an electrical short caused by substandard structures and a lack of planning to ensure the safety of the mall and the surrounding areas (Homer 2005). This situation negatively affected the businesses, many of which were uninsured. It also threatened other businesses and buildings, many historic structures, including the Trinity Cathedral, which narrowly escaped with just a small fire on its steeple. This is not the first time POS has experienced this situation. In the 1980s a similar large fire destroyed several large businesses (TTCC 2005) and the continued non-compliance of established building codes in the city poses a threat to the business as well as public safety in POS.

It is important to note that townscape issues are not being completely ignored in Trinidad. The importance of preserving historical buildings is also receiving some national attention. In February of 2005 the Trinidad government and the United Nations Educational, Scientific and

Cultural Organization (UNESCO) signed an agreement making funds available for the preservation of historical sights in Trinidad (Connelly 2005). The agreement, described as long overdue by education minister Hazel Manning, addressed the absence of preserved and maintained heritage sites and the exclusion of a cultural dimension in national planning and development policy. It also established a National Trust to preserve the built and natural heritage of Trinidad, covering not just physical historical sites such as the La Brea Pitch Lake but also the historical buildings, many of which are located in POS.

No other details were available on how sites will be chosen for maintenance by the National Trust, however the examples in Figures 5.40 thru 5.54 highlight traditional buildings have being destroyed or renovated during the Service era.

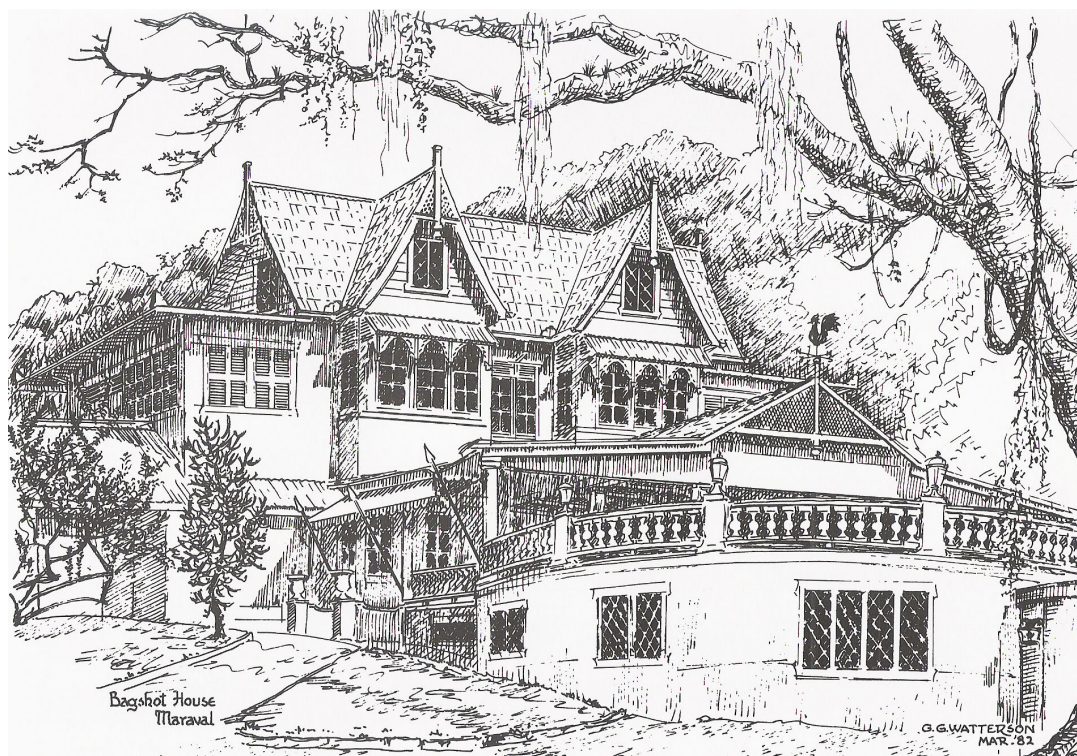


Figure 5.40: The Bagshot house sketched in 1982.

Source: Watterson 2002.

The Bagshot house was built as a private residence in the early 1900s and the adjoining avenue was named for the family that built it, the Valletons (Fig. 5.40). The house served several functions over the decades, most recently in the early 1990s a theatre was operated from the basement. In the early 2000s however the building was leveled and the trees on the property cut down in preparation for a high-rise residential structure. As of January 2005, however the site remained clear with no indication of plans to develop it (Fig 5.41).



Figure 5.41: The Bagshot house site 2005.

Source: Waldron 2005.

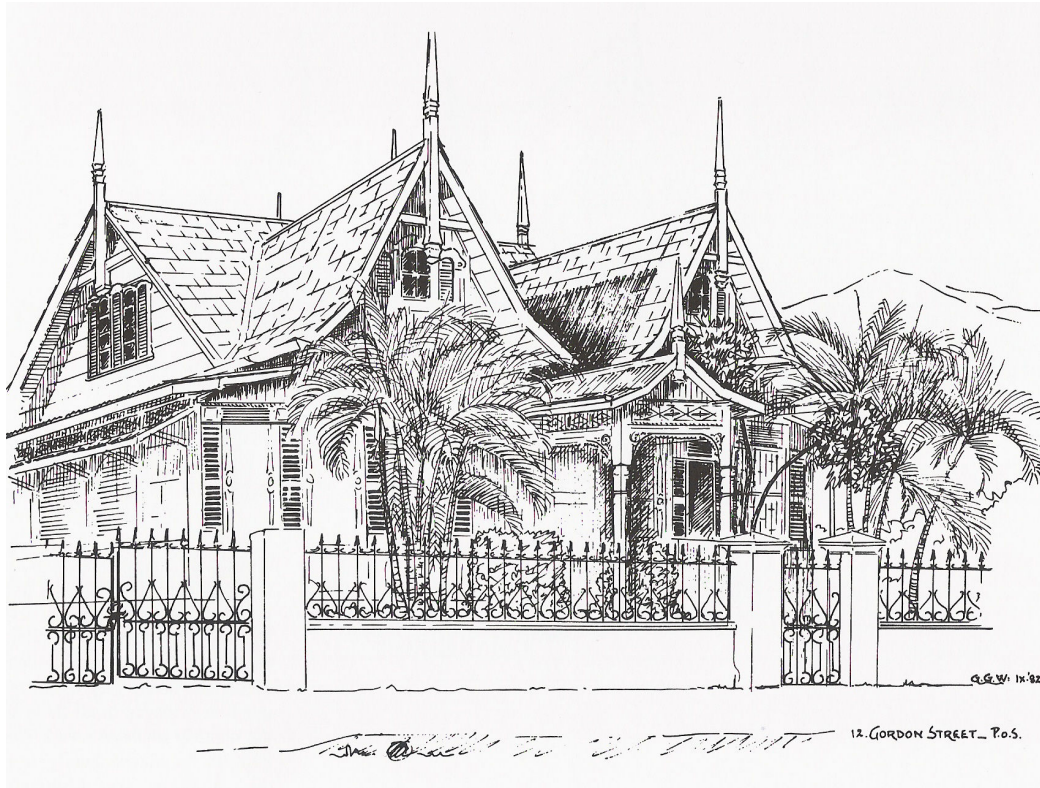


Figure 5.42: Number 9 St. Clair Avenue sketched in 1983.

Source: Watterson 2002.

Number nine St. Clair Avenue was a private residence built around 1899 with an abundance of traditional fretwork and louvered windows and the traditional wrought iron fence and gate. The house remained a well-maintained private residence unit it was sold in the early 1990s (Fig5.42). Once sold, the house was demolished and as of 2005 no other structure has been erected in its place (Fig. 5.43).



Figure 5.43: Number 9 St. Clair Avenue 2005.

Source: Waldron 2005.

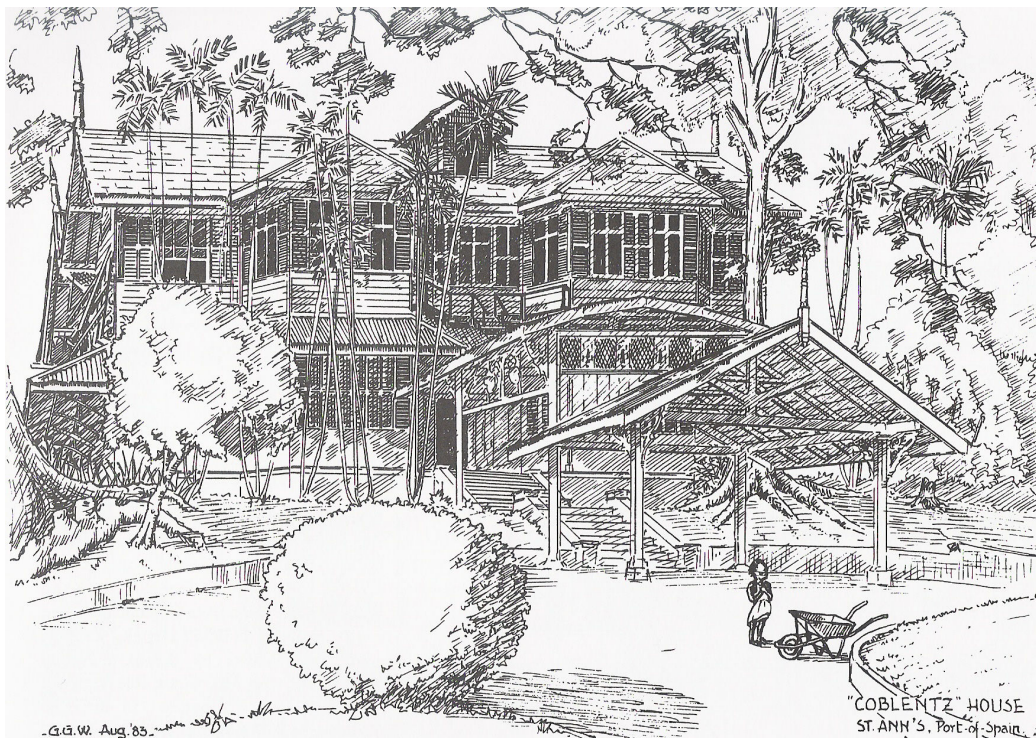


Figure 5.44: Coblentz House sketched in 1983.

Source: Watterson 2002.

The Coblenz House built was built in 1877 as part of a sugar estate (Fig.5.44). The lavish house even hosted the sons of Prince of Wales in 1880 and its grounds once housed one of the finest collections of orchids in West Indies (Watterson 2002). Sketched in 1983, the house was demolished in the early 1990s and a block of luxury apartments was constructed on the grounds (Fig. 5.45).



Figure 5.45: Coblenz House site.

Source: Waldron 2005.

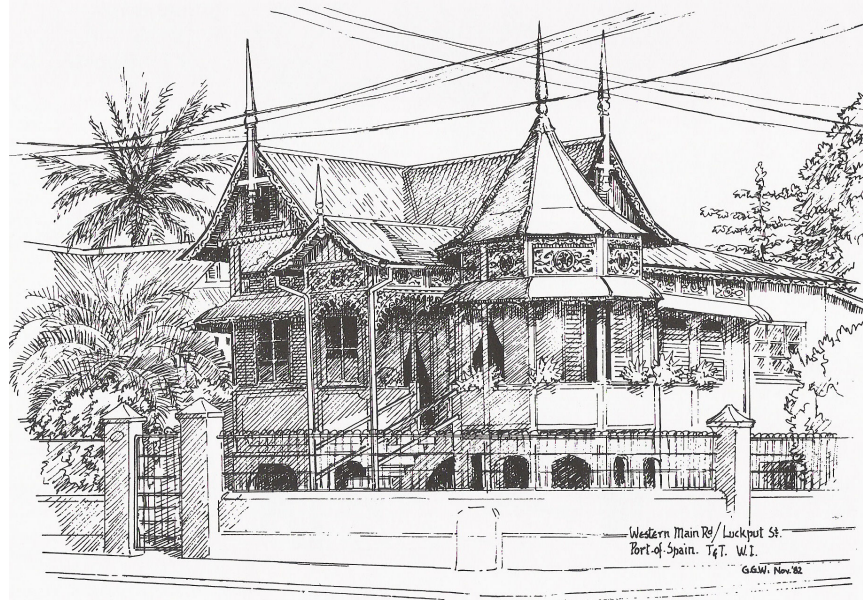


Figure 5.46: corner of the Western Main Rd. and Luckput St. Woodbrook sketched in 1982.
Source: Watterson 2002.

The house located on the corner of the Western Main Rd. and Luckput Street is an example of a Woodbrook residence built around 1900 (Fig.5.46). The building survived and was repurposed for commercial use in the early 1990s. However, as shown in Figure 5.47 increasing commercial pressures are surrounding the building.



Figure 5.47: Corner of the Western Main Rd. and Luckput St. Woodbrook 2005.
Source: Watterson 2002.

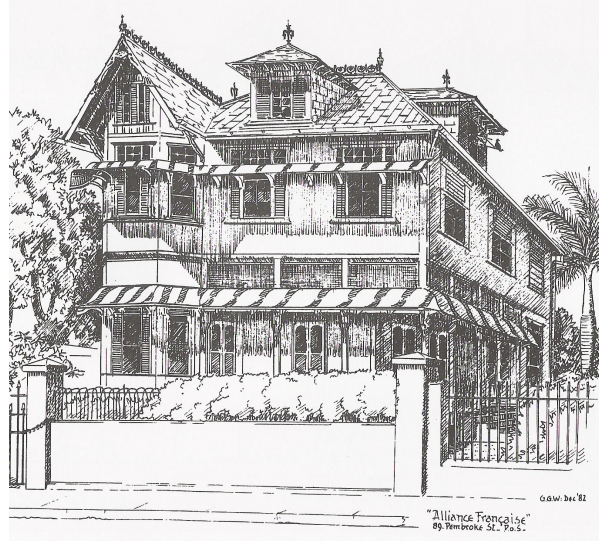


Figure 5.48: Number 89 Pembroke Street sketched in 1982.

Source: Watterson, 2002.

Number 89 Pembroke Street is an example of the building replacement that occurred during the service era in Port of Spain proper. A private residence that became the Alliance Francaise, a French school, in 1950, the building was built around 1910 and until the early 2000s retained its original form (Fig 5.48). The new building does not resemble the original architecture (Fig. 5.49).



Figure 5.49: Number 89 Pembroke Street 2005.

Source: Waldron 2005.

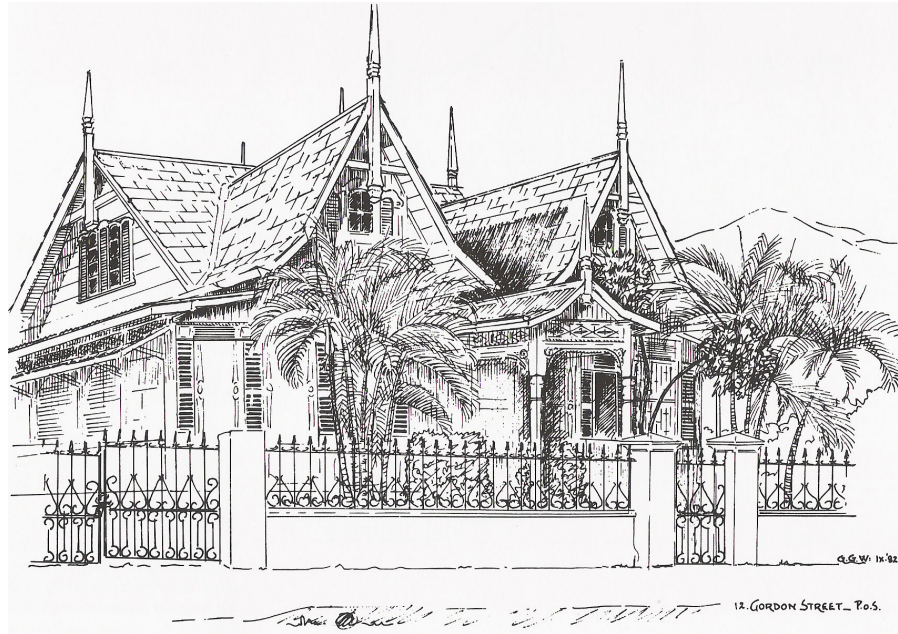


Figure 5.50: Number 12 Gordon St as sketched in 1982.

Source: Watterson 2002.

Number twelve Gordon Street was a gingerbread style house build around 1840 in the POS proper area (Fig. 5.50). Demolition of the structure occurred in the 1990s and today the only thing that remains of the building is the original fence (Fig 5.51).



Figure 5.51: The site of number 12 Gordon Street 2005.

Source: Waldron 2005.



Figure 5.52: Corner of Richmond St. and London St. sketched in 1982.

Source: Watterson 2002.

This town residence on the corner of Richmond St. and London St. is an example of the typical town houses that was available in POS proper in the late 19th Century with the red tile roof and intricate wrought iron balcony (Fig. 5.52). The structure consisted of a residence on the upper floor and a business on the lower floor (Fig. 5.53).



Figure 5.53: Corner of Richmond St. and London St. 2005.

Source: Waldron 2005.

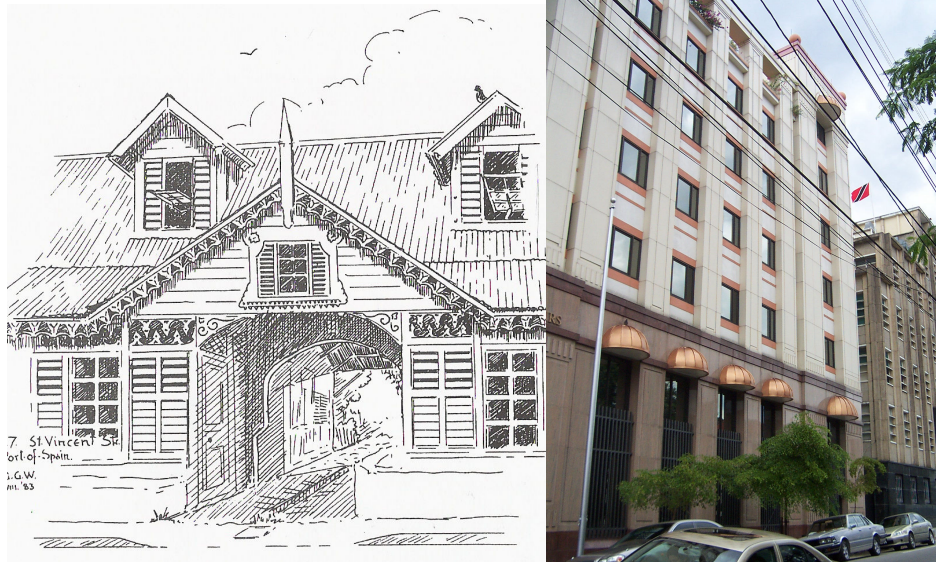


Figure 5.54: Number 27 St. Vincent Street 1983 (left) and 2005 (right).

Source: Watterson 2002, Waldron 2005.

Number 27 Vincent St. is located in the heart of the city opposite the Red House, the seat of Parliament. Into the 1980s this original mews with a carriageway leading to what was originally the stables remained and was reused without drastic change to its façade (Fig. 5.54). Today a new building, constructed in the 1990s stands on this lot.

Overview

Overall all areas saw a decrease in dwellings between 1970 and 2000 except Cocorite and Gonzales (Fig.5.55). Cocorite saw the addition of several projects of multi-family dwellings, one high-income and the others low to mid-income, explaining the increase in dwellings in that area. The decrease in dwellings followed the same pattern as the population trends with the highest decrease in Port of Spain Proper.

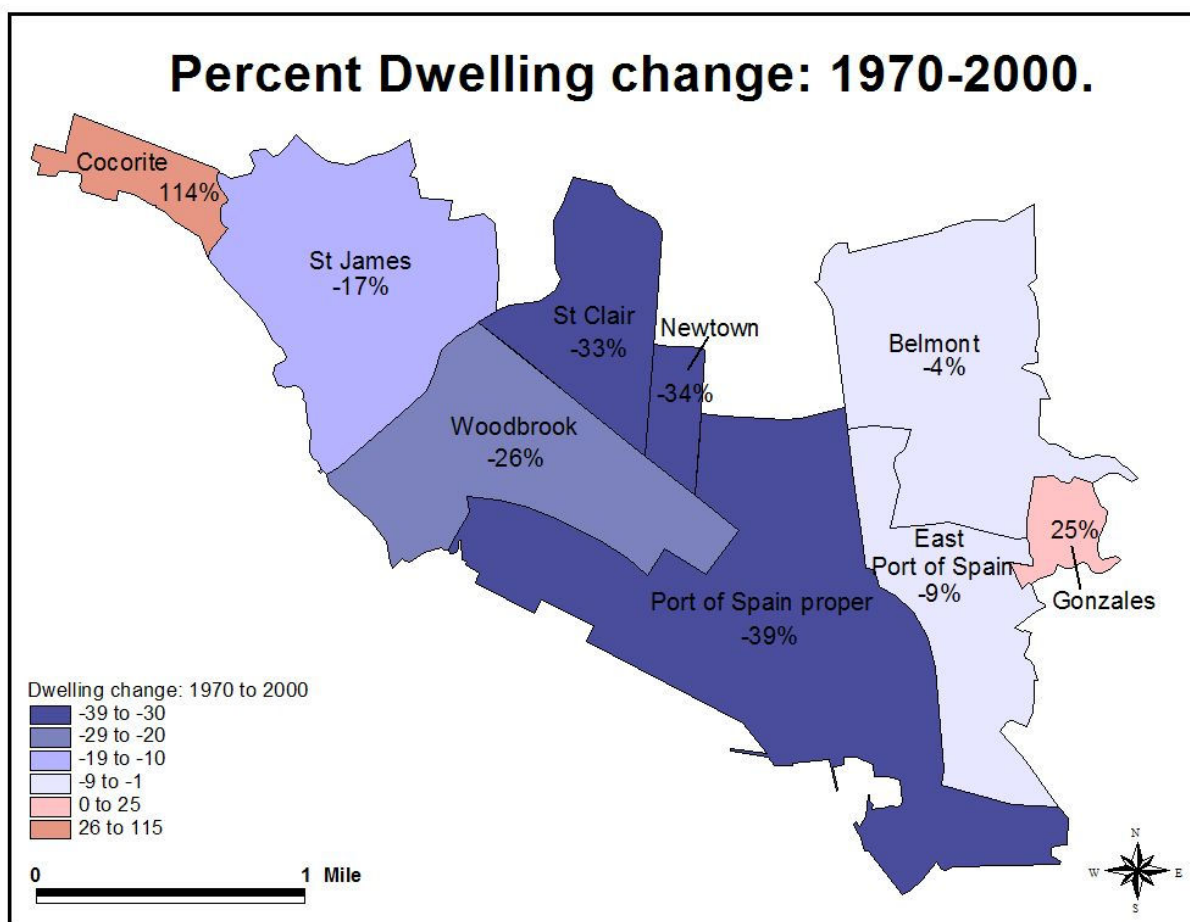


Figure 5.55: Changes in dwellings: 1970 – 2000.

Source: CSO.

Overall, all areas in POS saw an increase in the number of business places between 1970 and 2000 (Fig. 5.56). St. James, Woodbrook, Newtown and East Port of Spain saw the largest increase. St. James, Woodbrook, St. Clair, East Port of Spain and Newtown all saw the number of businesses more than double as residential and open areas were converted into commercial properties. Port of Spain Proper saw an increase of only 55%, which is not surprising since it is the main commercial area, and contains limited land for new development. The development that did occur in this area occurred possibly because of the addition of higher rise buildings in the service era.

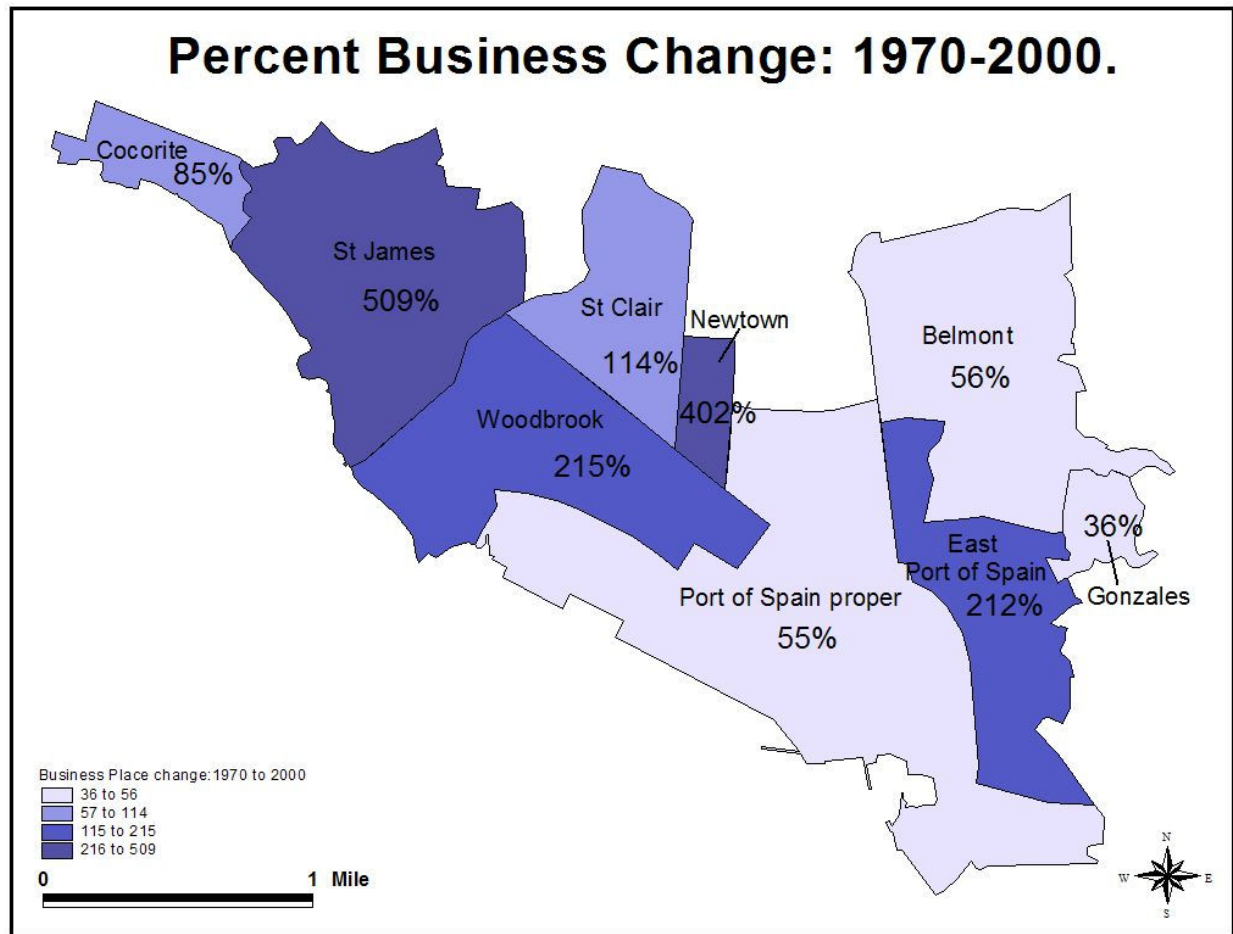


Figure 5.56: Changes in business places: 1970 – 2000.

Source: CSO.

Population in Port of Spain has, since 1960, steadily decreased while the population of surrounding areas has increased. The Manufacture Era saw the largest change in population in the city with a 32% decrease in total city population. The Agriculture Era follows with a 27% decrease in population, while the Service Era actually experienced a slight increase in population with a 3% increase. In terms of actual dwellings, the Agriculture Era has the biggest change with a 21% decrease in the number of dwellings in the city. The Manufacture Era, despite losing the most population, lost only 11% of its total number of dwellings due to the trend toward

decreasing household size during this era. The Service Era saw a small decrease, 3%, in the number of dwellings despite the increase in population.

Data on the number of business places and buildings in Port of Spain for the Agriculture Era was unavailable for this study. The Manufacturing Era experienced the largest change in commercial land use with a 57% increase in the number of business places within the city. In the Service Era the increase in business places continued with a 16 % increase, due to an increase in higher rise buildings making more commercial space available.

In terms of the number and type of buildings in the city the Service Era has seen the biggest change. Overall there was a 7% decrease in the number of buildings in the city during the Service Era, compared to the 2% decrease of the Manufacture Era. The first high- rise buildings were built during the Manufacture Era but only two were completed during this time. During the Service Era the number of high-rise buildings rose considerably and the plans for future high-rise structures continues.

CHAPTER 6 - CONCLUSION

There is little doubt that as the economy developed, Port of Spain has endured physical changes. Facing the physical boundaries of the Northern Range Mountains and the Caribbean Sea the city continued to grow and remains the economic and cultural center of the country. Over the three main periods investigated there were few changes in the political boundaries of the city. The CSO increased the POS boundary between the 1990 and 2000 census to include three areas not previously included: Long Circular, Federation Park and Ellerslie Park.

The Greater POS area as defined by UDECOTT is currently used as a basis for POS planning and includes partial sections of regions surrounding POS that form vital linkages with the city. These GPOS areas and the increased squatter settlements and spread of commercial activities to outer areas certainly suggest that this boundary may change again in the near future (Fig. 6.1).

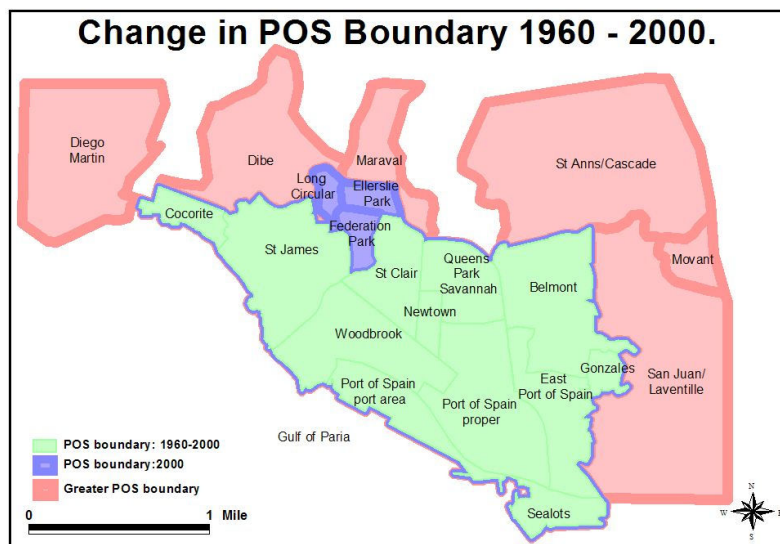


Figure 6.1: Changes in the city boundary of Port of Spain by era.

Source: Halcrow 2000.

Migration flows and population changes have followed the usual development pattern of countries in this area. The initial push away from agriculture led to economic activity gravitating to the city and in the early stages this drained the human capital away from the rural areas. During the Manufacturing Era increases in population numbers and density put stresses on the city infrastructure and resulted in unauthorized or squatter housing on the outskirts of the city. Today the population is once again on the move - this time displaced by commercialization of space as it is used for its highest and best use (Fig 6.2).



Figure 6.2: Migration Flows in Trinidad.

Source: <http://caribline.com> 2001; Halcrow Group Ltd 2000.

Land use within the city has also seen change (Fig.6.3). While holding steady during the first period, changes began in the Manufacturing period and a drastic change in land use and planning policies by the local government occurred in the last decade. The opportunity for

greater economic development led to the pressure for more high-rise office space within the city. This urban renewal hinges on the clearing of existing buildings - displacing lower income residents and destroying the character and history of the city areas. While the Trinidad and Tobago government's urban development plan calls on examples of countries in the "First World" as its base (Reid 2003), Port of Spain today faces many of the urban issues being encountered by the more developed countries in the world.



Figure 6.3: Photo of Savannah area today (left) and the proposed plan for development of the area (right).

Source: <http://caribline.com> 2001; Halcrow Group Ltd 2000.

The last decade saw a steady decline in the resident population and in available housing stock at all income levels in Port of Spain, especially in the low and middle-income ranges. Conversion of housing to commercial uses displaced renters and tenants with limited ability to secure increasingly higher priced housing. Inexpensive housing that the lower income population could once afford is being replaced with commercial space and the newer housing is often out of the economic reach of many of these displaced people. This led to the working poor being moved out of the city and to a reduced the residential population.

In turn, traffic congestion increased (as the work trip time has been lengthened) and areas, that were once vibrant around the clock, are now deserted at the end of the business day. The Woodbrook area is one example of this phenomenon. Established in 1911, this area became a middle class residential area and remained so until the mid 1990s. It boasted a strong residential base, community retail, and several parks and was the base for many of Trinidad's Carnival bands- an important factor in the country's culture. Today houses in this area sell for over one million TT dollars (160,174US\$) as its proximity to the downtown area has led to increasing land values and it is becoming increasingly commercial.

The stress on the housing stock also led to the densification of housing within the traditional areas and expansion into the forested hillsides surrounding the city. Unplanned housing, in the form of residential and agricultural squatting has increased in the hills north of Port of Spain. This phenomenon poses very serious environmental issues.

The forest found in these areas is being denuded and replaced by built environments, which also led to excess runoff and flooding in low-lying areas. The slash and burn method often used to prepare the land is responsible for the development of brush vegetation - often the most susceptible to fire during the country's dry season. The total land area of Trinidad covered by permanent vegetative cover in 1972 was approximately 75%. An estimate by the Forestry Division stated that the 1990 forest cover declined to 49.9% of the total land area in the nation (Trininetwork 2003).

The character and identity or "sense of place" of the city has also been affected. In many areas security has become a growing issue. Residents have expressed concern over the growing number of commercial buildings whose high walls and blank facades front public streets giving the impression that the area is under siege. This phenomenon has actually reduced the feeling of

safety and security of residents and reduced street quality- visual character and quality (Halcrow Group Ltd 2000).

This is compounded by the conversion of what were previously front garden areas into parking. The removal of landscaping and replacement with parking lots only further deteriorates the visual aspect of the area and also adds to traffic and safety concerns while conflicting with pedestrian flows. The preservation and re-use of important buildings within the city is also a main issue as many contain or symbolize a part of the country's history and culture. In changing the skyline of the city the very character and the bond that residents feel to the area is altered. These issues have led to concern over the future of the city as a vibrant, multiuse area able to retain and attract a residential base.

In his address to the United Nations General Assembly in 1999, Mr. Ramsaran, Minister of Social and Community Development of Trinidad and Tobago, stated that "population and development is not about counting people, it is about making people count" (Ramsaran 1999, 7). Certainly the government has taken steps in this direction with schemes to develop rural areas to stem the rural-urban shift and embracing the informal economy. Faced with limited physical space and social and economic pressure to expand, Port of Spain's future as a historically and culturally rich Caribbean city seems unclear.

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